

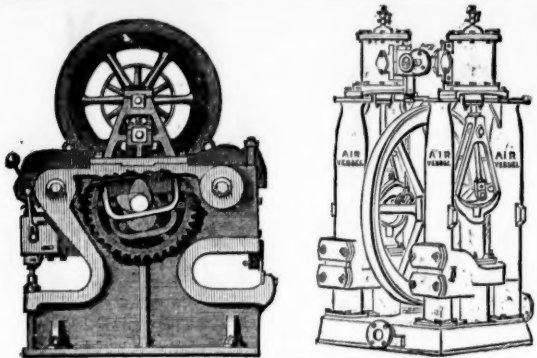
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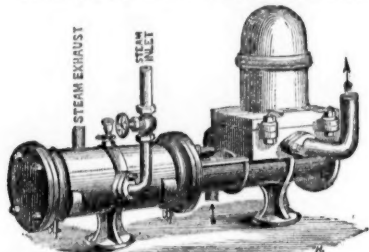
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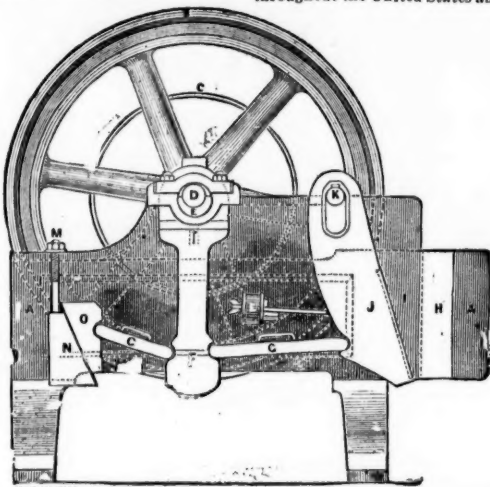
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CAUTION! BLAKE'S PATENT STONE BREAKER, In Chancery.

BLAKE v. ARCHER, NOVEMBER 12, 1867.

His Honour the Vice-Chancellor WOOD having found a VERDICT in FAVOUR of the PLAINTIFFS in the above Cause, establishing the VALIDITY of BLAKE'S PATENT, and made a DECREE for an INJUNCTION to RESTRAIN the DEFENDANTS, Messrs. THOMAS ARCHER and SON, of Dunston Engine-Works, near Gateshead-on-Tyne, from INFRINGING such PATENT, and ordering them to pay to the Plaintiffs the costs of the Suit.

ALL PERSONS are hereby CAUTIONED against MANUFACTURING, SELLING, or USING any STONE BREAKERS similar to BLAKE'S, which have not been manufactured by the Plaintiffs. Application will forthwith be made to the Court of Chancery for INJUNCTIONS AGAINST ALL PERSONS who may be found INFRINGING BLAKE'S PATENT after this notice.

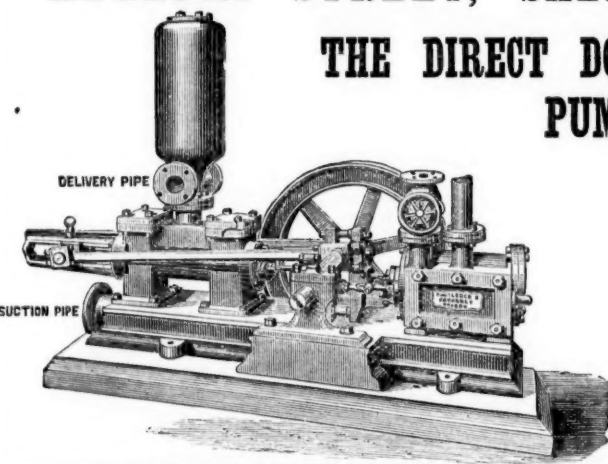
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ON UNDERGROUND HAULING, AND VENTILATION.

SIR.—These subjects having been brought out in practice most extensively at the Navigation and Deep Duffryn Collieries, I send you a brief account of the operations generally. Messrs. Nixon, Taylor, and Co. are the lessees of these mines. The Navigation Pit is a down-cast, 18 feet diameter inside, 365 yards deep to the Four-foot seam, and 425 yards to the Nine-foot seam. The Six-foot and Nine-foot seams are as yet unworked at this pit, further than sinking through them, the workings being confined to the Four-foot seam at both collieries. One-half of the Navigation Pit is used for raising the Four-foot coal, the other half can be applied to raising coal from the two seams below. About 70 yards of tubing, inserted in the pit, confines the principal springs of water to the strata behind it. The pumping-engine has a 22-in. horizontal cylinder, 3-ft. stroke, motion reduced by 2 ft. and 7 ft. cog-wheels; there are two forcing sets attached to it, pumping from the depth of 200 yards. The 4-ft. winding-engine has two 33-inch oscillating cylinders, being horizontal at the lowest part of the stroke, 6 ft. 4 in. stroke, 45 lbs. steam pressure; the gearing is moved by a donkey-engine; the drum is 20 ft. diameter in the central part, with a spiral groove at each side, decreasing to 10 feet diameter, more than half of each rope laps on the central part. Steel wire-ropes are used, 1½ in. diameter, which wear, on an average, two years; the iron ropes used previously were near 2 in. diameter, and lasted about half the time; the pulleys are 12 ft. in diameter. The other winding-engine, intended for raising from the Nine-foot seam, is exactly similar in size and construction to that at the Four-foot; it is used at present to raise water in tubs from the bottom of the pit occasionally. Another engine at the top of the pit is used as a crab-engine, and three small engines are used to feed the boilers. Two trams are drawn in each carriage from the Four-foot, in two decks; the weight of coal in each tram averages 19 cwt. About 600 tons are raised per day at present—700 tons is the maximum—drawing from 7.30 A.M. to 6 P.M. The men and boys go down from 7 to 7.30 A.M., and come up from 5 to 5.30 P.M., being 10 hours in the pit.

UNDERGROUND ENGINES AT NAVIGATION.—One engine is placed about 40 yards west and the other about 40 yards east of the pit; the east engine has two 12-in. horizontal cylinders, 2-ft. stroke, and three 4-ft. drums, on second motion. Two of these drums work the east level—first for 1100 yards to a north-east branch, also 200 yards further east, and 300 yards up the north-east branch; the main drum draws from each extremity, the tail-drum draws in to either of these extremities. There is a loose rope for each branch, either of which may be attached to the outer portion of the tail-rope when the set of trams is at the pit; a crab is used for changing and fastening the ropes. The third drum to this engine draws empty trams from the engine about 200 yards into a south-east branch; this road branches off about 100 yards from the engine. At the 200 yards the return sheave is placed, the tail-rope is disconnected there, the empty trams run down by gravity with the main rope, and the trams run into four different branches at or approaching the bottom of this south-east dip as required. The tail-rope is designed to be applied beyond the bottom of the dip by moving the return sheave to the extreme point, and having a loose rope on the dip. The full set of trams is drawn up the dip to the engine by the same drum which draws from the east level. There are thus three return sheaves, 3 ft. in diameter, in connection with this engine. The ropes are all steel-wire—main rope, ½ in.; tail-ropes, ¾ in.: 20 trams are run at once on the east level. This level is driven quite straight, but the dip undulates slightly; the full dip is to the south 3 in. per yard. The engine on the west of the pit has a 10-in. oscillating cylinder, 2 ft. stroke, two drums 4 ft. diameter, on second motion. One drum draws from the south-east, or "Prince way," 300 yards in length; the engine is placed at the entrance of this way, and in line with it. The empty trams run down by gravity with the rope into two different branches; six trams are run together. The rope from the other drum works backward and round a sheave into the west level; first, a self-acting incline, 200 yards long, is in operation from the engine inwards, at the top of the incline horses pull the empty trams with rope inwards 600 yards further, and the engine hauls the full ones to the top of the incline: 8 trams are run at once, and down the incline. The ropes for this engine are ¾ in. steel-wire. The west level is driven in a straight line. The drums of both engines may each be put in or out of gear by sliding one of the plummer-blocks, by means of levers. The steam for the engines is brought down the pit in pipes, and the exhaust steam is taken up the pit again in pipes. There are 41 horses and 3 ponies employed in this pit—20 by day and 21 by night; the latter convey stone for gobbing and filling up the stalls from all parts of the pit. The west engine-plane requires very heavy timbering, and arching is put in to some extent.

MODE OF WORKING THE FOUR-FOOT SEAM.—The coal is all got by long wall. The section is as follows:—Good coal, 5 ft. 6 in.; black shale, 3 in. to 1 ft.; inferior coal, 1 ft. 2 in.—6 ft. 11 in. The shale and bottom coal are got only in the gate-roads, and are generally cast into the gob. About 2 ft. of the top is taken down at the same time. The colliers perform this work, set timber and cogs along the face, and lay the road for the tonnage rate, 1s. 7d. Two men in each stall can get 4 tons of large coal each per day. The trams are moved in and out of the stalls by horses. The gate-roads are 15 yards apart from the centre of each. The gate-roads or stalls on the east side of the pit are driven in an east direction; in the west levels they are driven west, the stalls being driven about 60 yards from the cross-headings. The cross-headings go, to the rise, north-east or north-west, as the case may be, and are extended 300 yards or more. When stalls are driven 60 yards it is found best then to stop them, and commence a new cross-heading. The old gate-roads are then filled up close with debris from other parts of the pit. For this purpose a great number of men are employed by night, besides others cleaning and timbering the main engine and horse roads, arching, and ripping top stone. Above 100 men are employed thus by night, and 21 horses, and occasionally an engine. About 20 colliers are down by night cutting coal. The coal is got with scarcely any holing; sometimes it is holed at the top, when fast, but the coal usually comes down with the aid of bars, and sometimes wedging, facilitated also by pressure. The only use to which powder is applied in the pit is for blasting the top-stone down in the gate-roads and elsewhere. I have not heard of any substitute for powder having been tried in blasting stone.

VENTILATION.—The quantity of air entering the Navigation pit is measured at 87,600 cubic feet per minute, including 10,000 cubic feet going to the stables; there are seven other splits, varying from 6000 to 18,000 cubic feet per minute, distributed according to the extent of workings. One accident only has occurred during the seven years the mine has been worked (an explosion causing two deaths): the freedom from accident is attributed to the liberal supply of air, and to filling up the old work, so as to leave no space or cavities for accumulation of fire-damp, to carefulness in the use of lamps, and proper supervision over the mine and miners. In a coal mine one part of the operations is so dependent on another that a slight breach of the regulations may render of non-effect all the precautions which are possible to be taken to avoid accidents. As this mine is admitted to produce as much fire-damp as any of the Aberdare collieries, we must conclude that the system of ventilation is a proper one, which aims at preventing any lodgement of fire-damp in any part of the workings or goaf; and as outbursts of gas sometimes arise from the strata under the seam, the precautions and arrangements as to lamps, discipline, and supervision have been found sufficient to meet these emergencies. Two air-ways are formed parallel with the east and west levels; these are maintained at about 40 ft. area each, the returns from the various workings of this pit join and pass through special air-ways made to the Deep Duffryn pit, where the mechanical ventilator is in operation: the distance from Navigation pit to the Deep Duffryn pit is 960 yards, and seven returns are maintained between them, two of these are of large area; rails are laid down in each to clear the falls, and the debris is removed to fill up the stalls in some cases. There are 30 men employed in the air-ways.

NIXON'S VENTILATOR.—This is placed at Deep Duffryn pit, which is 17 ft. in diameter, divided in two equal parts by wood brattice, one-half being used for raising coal, and the other half as the return from Navigation Mine to the ventilator; the machine is thus placed at a disadvantage, air is, no doubt, drawn through the brat-

tice, and in addition to the circulation through the workings it has the drag through the air-ways to the Duffryn pit to contend with. The ventilator is put in operation by a 36-in. cylinder engine, 6-ft. stroke, at the rate of 6½ strokes per minute. There are two air-pistons, 30 by 22 ft., 6-ft. stroke, in two chambers: each double stroke should give 7920 cubic feet in one chamber and 15,840 in two, and 6½ strokes, equal 102,960 cubic feet per minute; but this is much more than is realised, owing to leakage at the brattice and valves: the currents to the machine and to the furnaces are mixed together, which makes it difficult to determine the quantity obtained by the machine. There are 364 outlet valves, 24 by 16 in., in two chambers—970 feet area, and 336 inlet valves somewhat smaller in area; the area of the two pistons is 1320 ft., 12 strokes per minute would give theoretically 190,080 cubic feet; the steam-engine has worked at this rate. The engine should have two cylinders, to work together or separately as required; this would then, no doubt, be the most efficient ventilator for deep and extensive mines.

DEEP DUFFRYN PITS.—There are two pits, one 17 ft. in diameter, as before noticed, the other 9 ft. in diameter, used as a furnace pit for the ventilation of the Deep Duffryn Mine; the depth is 286 yards to the Four-foot seam. The tubing in the furnace-pit, having been about 16 years in its position, had become so weak from corrosion that a new casing had been inserted within the old tubing, which has just been completed, and rendered the shaft clear of water; the depth of tubing is about 70 yards. The winding-engine at the large pit is a marine side lever construction, two vertical cylinders 33 in. in diameter, 45 lbs. pressure. The drum is 18 ft. in diameter in the central part, with a spiral groove on each side decreasing to 9 ft. in diameter. Water is raised in tubs by this engine at night. A small beam-engine has been used for pumping, not now in use; two small engines feed the boilers. There are 11 boilers to supply steam to the winding and ventilator engines, and two hauling-engines at the bottom of the pit, conveyed down by 10-in. pipes; the exhaust steam is conveyed by pipes to the bottom of the deepest pit.

UNDERGROUND ENGINES.—One engine, 100 yards west from the pit, hauls on the west level; it has two 14-inch horizontal cylinders, 3-ft. stroke; two 5-ft. drums, on second motion. The tail-drum hauls in 800 yards on the west level, where a branch goes north-west 380 yards; the level plane continues 800 yards further west. There is a loose rope for each of these last lengths, either of which are joined to the 800 yards length as required. The other, or main drum, hauls outwards from the extremity of each of the two roads; 22 trams are run together, at the rate of 12 miles an hour. The east hauling-engine is about 30 yards east from the pit; it has two 20-in. horizontal cylinders, 3-ft. stroke, three 5-ft. drums on second motion; two of these drums work 10 trams in and out on the east level, by tail and main ropes; this plane is 1300 yards long, without branches; the engine is in line with the plane. The third drum pulls the laden trams from the south or dip side of the shaft, the plane commencing opposite the shaft. The empty trams run down with the rope; the length of the plane is 800 yards. The drums belonging to both of the engines are each of them moved in and out of gear by sliding both plummer blocks. Steel wire-ropes are used, all ¾ in. There are about nine miles of wire-rope used for hauling altogether in both pits. Furnace ventilation is adopted for Deep Duffryn Mine; about 120,000 cubic feet of air is distributed through the workings per minute. The Four-foot seam only is worked; about 600 tons are raised per day. The carriages hold two trams each in two decks.

The workings of the Navigation and Deep Duffryn Pits are inspected once in six months, or oftener if required, by four of the colliers; two of them travel the air-ways in each pit in two days, accompanied by an agent. Each man receives 5s. per day for his trouble, and it is understood they must travel through the whole of the air-ways.—Aug. 24.

M. B. GARDNER.

THE SOUTH STAFFORDSHIRE AND SHROPSHIRE COAL FIELDS—No. XII.

UPPER COAL MEASURES OF THE MIDLAND COUNTIES.

SIR.—Intimately connected with the question of the denudation of the coal fields is that of the formation and subsequent isolation of large tracts of the upper or younger series in Staffordshire, Warwickshire, Lancashire, and Shropshire. They are spread over a larger surface than the older members, and are said to represent an area of more than 10,000 square miles. They make an imposing appearance on the map, but there is more show than substance, and they are very rarely worked. There is little difficulty in recognising them, from one or more features they almost uniformly present: thus, they are generally associated with a series of sandstones, shales, and clays, red, brown, and green, which formerly were considered to be Permian, but which by general consent are now admitted as part of the series of upper coal measures; they generally consist, too, of three or more inferior beds of coals, and are in most cases accompanied by a well-known band of limestone, about 5 ft. thick, in which is found a little annelide, known as *Spirorbis carbonarius*—a marine worm, which attaches itself to any floating piece of vegetation that comes in its way. This very singular band has not, so far as I am aware, yet been found in South Staffordshire, although it exists, but more as an ironstone than a limestone, in the North Staffordshire, or Pottery, coal field, which, having been less affected by denuding agencies, has four times the strata and twice the thickness of coal the former has. Still, from their position, and their relation not only to the older measures below but to the Permians above, into which they sometimes graduate, there is no difficulty in recognising them. One is the sulphur coal, which occurs 150 feet above the Two-foot coal, and 300 feet above the Thick coal. It sometimes happens, however, that two small coals, of 4 and 18 in. are met with above this, in connection with the olive, green, brown, and yellowish sandstones of Halesowen. At Hagsbury Hill, below rocks believed to be Permian, 50 or 60 ft. of grey rocks succeed, with a 9-in. coal, then 280 ft. of red and blue marls, mottled ground, &c., the prevailing colour being a deep purplish red, and these continue to within 233 feet of the Thick coal. Mottled ground, red marl, and brick-clays occur, as at Burnt Tree, near Tipton, and between the Lye Waste and Stourbridge, where they are used for brickmaking. At Great Bridge there is a bed of red marl, 6 ft. thick, 205 ft. above the thick coal, whilst 38 feet above that, or 233 feet above the Thick coal, a group of red marls occurs, 64 feet in thickness, with beds of blue or mottled rock. The upper sulphur coal then comes in, with a white fire-clay beneath and a blue clunch above, covered with 63 feet of beds, with no red, over which are 192 feet of other rocks, in which beds of red marls, from 8 to 16 ft. in thickness, are frequent. Comparing the colours, thickness, and position of these rocks, shales, and clays with those of Walsall Wood, Essington Wood, Rumour Hill, near Cannock, Littleworth, on Cannock Chase, and again with those met with just on the borders of the Shropshire coal field, there is little difficulty in assigning them their proper place. From their red and purplish colours they were formerly classified as Permians, but subsequent observations over wider areas have corrected earlier impressions, and led to new classifications.

In Warwickshire this younger group of measures has the band of limestone with *Spirorbis carbonarius*, to which we have referred. It occurs at the base of a series of shales and sandstones, 50 feet thick, and 1000 feet above the five workable coals, which, at the northern end of the district are separated by 12 feet of shales and sandstone, that decrease in thickness whilst the coals remain the same, and form near Coventry a bed 26 feet in thickness, parallel to that in South Staffordshire, where the Thick coal splits up northwards.

In the Manchester coal field, that on the north-eastern side, the highest beds consist of red clays, shales, sandstones, and six beds of limestone containing the *Spirorbis*, two thin coal seams, and a bed of blackband ironstone, which is considered from its position to represent a similar band of the upper coal measures at Stoke, North Staffordshire.

In Shropshire we have these upper and younger coal measures occupying the most varied positions, and in almost every instance resting on inequalities of surface formed by denudation. Sometimes they are found above the Top coal, as at the Kemberton pits; next, over the Vigor coal, where the Top coal had been denuded, at Hill's Lane pits (less than half a mile off); then over the Clod coal, where all above had been washed away, as at Caughley (on the opposite bank of the Severn); next on the Old Red Sandstone, more to the south; and on the west, as at Le Botwood, on the Cambrian rocks them-

selves. You find them at the base of the Longmynd—hills on the flanks of which Silurian and subsequent seas laid down their sediment—at that of the Caradoc, on that of the Haughmond Hill on the east, and at the foot of the Wrekin, near the ruins of Uriconium. At Le Botwood, Westbury, Longwood, and many other places around Shrewsbury they have been worked more or less from time immemorial. They are generally accompanied by the same band of yellow ochreous limestone, and in most places are easily reached from the surface; but now and then they are overlaid by a stratified breccia, the ruins of carboniferous and Silurian rocks, which, having been dislodged from their parent beds, formed the shingle beach of a coast line along which the old hills referred to peered above the water. At various places around Shrewsbury the red rocks are seen above, or dipping rapidly away from, these younger coal measures, as at Pitchford, Uffington, Preston Boats, and Le Botwood. Where the coal measures are present the red rocks may be seen following close up the indented denuded lines formed on the flanks of the Cambrian hills, and where absent resting directly upon their highly inclined strata. Along this thin upper coal measure tract, from which the lower coal measures had been clean swept away (if, indeed, they ever existed), the most instructive passages and transitions into the overlying Permians and Lower New Red Sandstones are to be witnessed. The coals themselves differ both in number and quality in various places. Some are so exceedingly pyritous that they are used for the purpose of extracting sulphuric acid, as the Yard coal, or stinkers, which is separated from the lowest, or Two-foot coal, by red, green, and black clod, shale, and sandstone. J. RANDALL, F.G.S. Madeley, Salop, Aug. 24.

WORKING COLLIERIES—THE LONG WALL SYSTEM.

SIR.—At a time when the country is anxiously looking for some improvement in working our coal mines, which may tend to lessen the number of those fearful explosions and accidents which appal the world, and by which so many valuable lives are lost, I beg to ask your permission to make a few observations on a subject which I think has not yet obtained the general attention which it deserves—working coal by the long wall plan. Now, I believe that many "viewers" who get their coal on that plan will bear me out when I say that when once the long wall has gone far enough for the "weight" to press fairly on the undercut coal, the use of gunpowder is generally unnecessary, as it then parts from the roof so readily that it is the custom to keep it from falling by putting sprags into the groove. In fact, I am acquainted with several collieries where now no blasting is used, where formerly, when getting coal by pillar and stall, gunpowder or wedging were essential in all cases.

Again, I contend that the ventilation of collieries is improved by the long wall plan, for instead of splitting the air into less and less proportions, and causing it to twist in and out, turning corners in every direction, it is sent in large volume down the long faces, thus having much less unnecessary ground to travel, and without so much friction in its course.

Again, a long wall advances equally along its entire length; this admits of a proper distribution of labour; there are packers, holers, and fillers, and, where, absolutely necessary, blowers or wedgers; thus a more direct supervision can be exercised, and if there is bad work in any branch it may at once be seen and amended. On the other hand, in the pillar and stall mode of working it is the custom for one man to do all the work in his own stall, and as his anxiety is to send out as much coal as possible, he, no doubt, often grudges the time necessary to ensure his own safety, and fails to secure a doubtful portion of roof.

I do not purpose here to enter into the advantages which might be adduced in favour of the long wall plan in its monetary point of view, as regards the saving to the capitalist.

And now, Sir, in conclusion, I may express a wish that the discussion of this subject may be taken up by those who have had a hundredfold the experience of myself in these matters; and if any fact can be proved which, by its adoption, will lead to the greater safety of our mining population, my object in presuming on your valuable space will have been accomplished. SAMUEL FIRTH, M.A. Leeds, Aug. 25.

COLLIERY WORKING AND MANAGEMENT.

SIR.—The dreadful colliery explosions in Saxony and at Haydock brings, most painfully, the fact before our minds that fire-damp continues, apparently, to defy the skill and care of the best mining engineers of the day. In early times explosions were very frequent in Northumberland and Durham, and I am led to believe from the unpublished memoirs of an old miner (Mr. S. Haggerston) that we have no correct account of the number of explosions beyond a certain date. In the primitive times alluded to the science of ventilation was but little understood, and the safety-lamp was unknown. But as the ventilation was improved, and the safety-lamp introduced, it was fondly hoped and believed that explosions would cease, but instead of that happy era arriving these dreadful occurrences appear to increase.

How, then, is this alarming state of things to be accounted for? Has the science of ventilation not really advanced with giant strides, and the use of the safety-lamp become almost universal in fiery mines? Unfortunately, I have not a file of the *Mining Journal* to refer to, but I well recollect that about the year 1852 or 1853 a writer in the *Journal* contended that the advance of the science of ventilation would not have the effect of preventing explosions, as the area of the pits would be increased in proportion to the ventilating power, and the output also increased in proportion. It was contended that whatever the aggregate amount of ventilation might become, the district ventilation would not be materially improved—at any rate, not made safe for the use of candles. Has this proved a true prophecy? Is this not something like the state of a great portion of the mines at present? It is evident that the number of explosions, which, previous to the invention of the Davy lamp and the improvement of ventilation, had reached the maximum, have now (at least this is to be charitably assumed) reached the minimum. It is evident that by employing a machine to put in circulation (say) 150,000 cubic feet of air per minute, a coal mine ought to be pretty safe, if the districts are as skillfully laid out and ventilated up to the very face, as they ought to be.

What was the state of the mine in Saxony we can only guess at present, but it appears to have been worked by candles or open lights, and the whole air circulated in the mine had possibly become foul, causing a general explosion; or it is perhaps possible that the explosion may have occurred in a district near the main outlet. If the latter circumstance occurred, the retreat of the men might be cut off by falls, or an accumulation of the deadly after-damp.

It will not be denied that the aggregate quantity of air in circulation at Ferndale and Haydock was very considerable, but this did not prevent the accumulation of fire-damp in certain places or districts, and the firing of shots was carried on very freely at Haydock. It must be observed, also, that holings 50 yards apart are very wide indeed for a fiery mine, and especially when a thick seam was also to be contended with. Whatever the amount of air circulated in a mine may be, it is evident that if the districts or individual stalls are allowed to become foul the danger of explosion is very great, and especially so when shots are allowed to be fired. M. E. Newcastle, Aug. 26.

GETTING COAL WITHOUT GUNPOWDER.

SIR.—Within the last few months I have observed references in the *Mining Journal* to two distinct inventions for superseding the use of gunpowder in getting coal, yet I see no mention of the practical application of either. From the importance which was attached to the machine exhibited by Mr. S. P. Bidder, jun., at the *conferenza* of the Institution of Civil Engineers, I had hoped that the use of gunpowder in collieries would speedily become a thing of the past, yet so far from this being the case, the necessity for blasting is still asserted as confidently as ever.

The instrument designed by Mr. Bidder appears to me unlikely to produce a breaking force at all corresponding to that produced by gunpowder, because the wedges necessarily act in the opposite direction to gunpowder, and, therefore, compress, as it were, much of the coal which gunpowder would break away without compression. Now, I think that if the points of the wedges were outward instead

of inward the difficulty would be overcome, as the coal would be broken off precisely as by a blast; but then the question arises, how can the wedge be moved? This Messrs. Tigou and Whieldon propose to attain by the use of toggles; they propose to break down the coal, stone, or other mineral after it has been undercut in the usual or other manner by inserting into a "shot hole," drilled in any convenient or suitable part of the coal, stone, or other mineral, a contrivance consisting essentially of one or more series of rows of levers or arms, having a toggle or knee joint expansive action in a lateral direction, so as to exert a forcible pressure in opposite directions against the walls or sides of the "shot hole," whereby the mass of coal, stone, or other mineral will be effectually broken down. The expansion action of the levers or arms, above referred to, may be effected in various ways, as, for example, by moving longitudinally either inwards or outwards a rod or bar upon which such levers take their bearings, the requisite power being obtained either by hydraulic jacks, screws, or other well-known mechanical contrivance.

That the force that can be exerted through toggles is enormous is well known, but it appears to me that a shot hole is not the most favourable position in which to use them. Indeed, in such a position joints of any kind are objectionable, and I am convinced that it is only such a simple arrangement as that of Mr. Bidder that could ever be generally introduced. The desideratum is to get the wedges to act in the opposite direction, so as to break down the coal without compressing it. Can Mr. Bidder attain this? COLLIER.

Wigan, Aug. 24.

PREVENTION OF COLLIERY EXPLOSIONS.

SIR,—As the opinion seems to be entertained by many that the proposition of Mr. Bessemer is worthy of consideration on account of its novelty, if for no other reason, the subjoined extract from the *Mining Journal* of Aug. 20, 1864, just over five years ago, may be interesting:

"LIGHTING MINES.—As an improvement in supplying air to lights in mines, the Rev. W. R. Bowditch, of Wakefield, proposes to condense air by a pump or other suitable means, and convey it in pipes to a receiver, and thence to the light to be supplied, or directly from the condenser to the light. The light, naked or in a safety-lamp, is placed in a lantern, which has an aperture for the admission of the pure air, and one or more apertures for the exit of the air and products of combustion. The condensed air is conducted through a pipe, which fits tightly into the lantern, and by this air combustion is supported. The surplus air and the products of combustion pass out through the apertures made for that purpose in the lantern. The air being supplied to the lantern under pressure prevents the entry of fire-damp or any other dangerous gas that may surround the lantern. Air under pressure is apt to extinguish lights supplied with it, and to flow to waste if the current be not regulated; to prevent this, he passes it through a pipe or pipes, obstructed by screw plugs, or taps, or wire, or by combinations of these, or by other suitable impediments, so that its flow may be regulated according to the supply needed. He also uses the waste air blown off from engines worked by compressed air. In this case the air which is blown off is received into a suitable box, with a valve, before it is allowed to mingle with the atmosphere, and it is conducted from the box to the light through a pipe or pipes, as described. He also allows the air to escape around lights without enclosing them, but this plan is not so efficient or economic."

Aug. 25.

UNIONISM IN SOUTH WALES.

SIR,—Another attempt is being made to revive Trades Unionism in South Wales, with what success time alone can show. A meeting of delegates representing the collieries of Glamorganshire and Monmouthshire, convened apparently at the request of a delegate from the Lancashire miners, was held at Pontypridd last week, and after much discussion and deliberation it was resolved—"That a Union of miners for South Wales be established from this day." Other important matters, including the eight-hours system, the desirability and practicability of a rise in wages, and the Mines Regulation Bill, were down for discussion, but so much time was taken in considering the only resolution passed that another meeting is to be held, in order to thoroughly ventilate the other subjects.

Without anticipating the conclusions of the delegates on all the questions in the programme of the meeting, the one resolution passed—"That a Union of miners for South Wales be established from this day," need only be at present referred to. It was urged at the meeting by the Lancashire delegate that without a complete and absolute Union among the miners of the various districts of the kingdom it was quite impossible for them to attain success as regards any of the objects they had in view. The old truism, "Union is strength," appears to have been the leading principle of the argument urged, and no doubt, as a rule, in a Trades Union, like any other organisation, union is desirable and essential to success. As a deliberative body, no one, unless bigotedly attached to old autocratic ideas, objects to a Union of miners to consult with one another, and act as the mouth-piece of the men in the passing of new laws for the better regulation of mines, the management of collieries, and other useful matters; but when delegates usurp to themselves the right of fixing rates of wages, the mode of working, and make other unreasonable proposals, here Unionism at once comes into conflict with the employer and the public interest. No colliery proprietor who is not blind to his own prosperity will resort to a lock-out, or risk a strike of his men, unless he is compelled to do so by their exorbitant demands. A master has to regulate his dealings with the law of supply and demand; he cannot individually command the market and regulate the course of prices.

If a Trades Union could assist the employer in obtaining a fair price for his coal, then it would perform real service to both master and collier, but in the absence of this power, what practical benefit can the miners of South Wales secure from the establishment of an Union? As stated before, a consulting and deliberative body of delegates might be useful, within proper bounds, in disseminating information, and obtaining an interchange of views on different subjects affecting the welfare of the miner, but once the Union commences to dictate to the employer in reference to wages, then it goes outside its proper functions. It is a well-known fact that the great majority of strikes for the last 20 years have ended disastrously for the men, lower wages, in many cases, than first offered having in the end to be accepted. And it is equally true that had it not been for the unwelcome interference of Unions many of the strikes might have been averted, and many more settled upon fair terms. Let the colliers of South Wales, then, take heed by past experience, and in the establishment of their Union let it be well understood that it is to be a deliberative, and not a controlling, body—an association more for the improvement of the social condition of the miner than for asserting political privileges, and endeavouring to obtain higher wages by combinations which are alike injurious to and opposed to the principles of free trade.

Just at the present time, when dormant Unionism is to have another trial, a brief statement respecting the last turn-out of miners in Monmouthshire will not be out of place. The masters throughout Monmouthshire and Glamorganshire gave notice of a reduction in wages at the commencement of 1868, and the Glamorganshire collieries one by one accepted the drop. The Monmouthshire men refused, and in this unwise course they were undoubtedly supported by Glamorganshire. For a few weeks the colliers received Union pay, the money having been chiefly collected in Glamorganshire. This, however, soon stopped, and the Glamorgan men then promised that if the demands of their Monmouthshire brethren were not complied with they would turn out themselves. Whether it was ever intended to loyally carry out the promise is open to doubt, for after a few months strike, the Monmouthshire men found themselves without funds or support of any kind; and during nearly the whole of that time the colliers of the other districts of South Wales were in full work at the drop. To this day the coal trade of Monmouthshire has not fully recovered from the shock it then received; and if the men of that county will allow themselves to be voted into a Union after the treatment they received in 1868, they have only themselves to blame.

A MONMOUTHSHIRE COLLIER.

THE CHANNEL BRIDGE.

SIR,—I have the pleasure to enclose for your perusal the accompanying extract of a letter from an English solicitor, now in Paris, who had the curiosity to visit M. Boutet's works, on the 19th inst. His remarks are important, as showing that the statements made from time to time with reference to the support by the French Government of M. Boutet's scheme are correct. HENRY STEAD, Secretary.

"I have been to the Depot des Marbres, where M. Boutet has a suite of six rooms for offices—two handsome rooms on the ground floor and four smaller on the first floor. Two workshops, where a forge and lathe have been set up at the expense of the French Government, and a large yard. There are in it a model

on 1-100th scale of one arch of the Channel Bridge; two small bridges made, one for the college at Verviers and the other for Senlis; and a third, three times as wide and twice as long as the model of the Channel Bridge, almost finished. I have also seen the cable which M. Boutet said in his last letter he had to make before applying to the Emperor for a grant for the construction of a bridge of 100 metres. From all I can hear, the French Government are undoubtedly strongly in favour of the bridge, and will not bear of the tunnel or the raft, or Capt. Tyler's substitutionary proposition which all I have spoken to deprecate. I find Capt. Tyler was one of the deputations who applied to the Emperor to support the tunnel, and it is thought, I am told by one of the shareholders, that Capt. Tyler was completely misled by supporters of local interests at Boulogne during a hasty visit."

NEW SYSTEM OF IRON AND STEEL MAKING.

SIR,—Your Eston correspondent, signing himself "An Iron Smelter and Would-be Steel Maker," has not profited by my reference to the old maxim as to playing the fool in the proper place. He has again filled some columns of your space with utter silliness, presumably intended for fine writing. Amidst this heap of trash he raises one or two points in reference to our process, which are so obviously on the surface that I should think no one but himself would require to be told that we have foreseen and provided for them. If these are the only obstacles to success, then our success is already assured. But from more than 20 years intimate practical acquaintance with iron and steel making I anticipate finding in ignorance and prejudice, and especially in the natural dislike capitalists have for new processes, which displace or require alterations in existing plant and machinery, much greater obstacles than in those practical difficulties which necessarily accompany a new process before it has been put into practice. I hold that sort of practical knowledge very cheap indeed which is unable to assist in translating scientific truth into actual daily use; practical ignorance I should rather term that knowledge which consists in rule of thumb work, and utter ignorance of the principles of the operation. But truth is strong, and will prevail. How long it may be before the present erroneous methods of making iron and steel are superseded by more correct processes is a question, but that the present plans are doomed is a certainty, because they are contrary to scientific truth.

Your correspondent ventures to prophecy that we shall patent the use of nitrogen in making steel. Now, about the last thing in the world which would enter my head would be to expect any valuable idea from your Eston correspondent; however, he knows all about nitrogen, and how nitrogen makes steel, a knowledge not vouchsafed to me nor, I believe, to any other human being except himself. I believe that in the racing world the possessor of exclusive information is said to have "the straight tip." Now, as your correspondent has got "the straight tip" about nitrogen, and how to make steel with it, my advice to him is, "Go and do it." He will then be profitably occupied, which is more than can be said of him when inflicting rubbish on your readers, or which is worse, deliberately making misstatements. If your correspondent's version of Dr. Paul's remarks be compared with your report of the same, it will be seen that a "Would-be Steel Maker" has made Dr. Paul say that which he expressly did not say. I challenged your correspondent to discuss the subject under his own name, as I do; but he skulks into your columns under another alias. Probably your readers, like myself, will have no difficulty in forming their conclusions as to "the reason why." I repeat my challenge; and if he fails to comply with my condition of signing his proper name he will have no further notice from me. There is too strong a family likeness between the anonymous letter writer and the assassin for my taste. T. C. HINDE.

Fownhope, Aug. 24.

ON SLATE, AND SLATE QUARRIES.

SIR,—I was much interested in the first of the promised series of letters on Slate, by Mr. Pattison, appearing in the *Journal*. Some of the statements there made seemed to me to require comment, chiefly from a practical point of view. I, however, must defer the remarks they suggest in expectation of the following letters of the series, as they will enable me to do more justice to the author and his subject.

In the *Mining Journal* of August 7 there appeared a notice of the Penrhyn Slate Quarries, in the United States, meant by the writer to be highly commendatory. But the account there given of the divers colours and character of the produce would produce an opposite impression as to the value of the veins upon any practical man of experience. One of the most universally noticed features of all large deposits of slate rock in our best quarries is the uniformity throughout of the colour and texture belonging to the country, admitting, nevertheless, certain varieties in different parts of the quarry well recognised as of frequent occurrence in the locality. Such are the green veins in Penrhyn and the purple alongside the red in Velinell. But such an omnium gatherum of black, red, blue, purple, grey, and green as your correspondent describes denotes a vein too much influenced by various metallic mixtures to yield the best pure cleaving slate. This holds, especially of black slate, which your correspondent does not seem to be aware is so perishable as to be all but worthless, and never found in a good uniform vein of slate.

Turning now to the recent nitro-glycerine accidents, and the legislation in consequence prohibiting use or removal of this explosive compound unless under conditions securing safety except from consequences of wilful neglect, in the remarks on the matter in the *Journal* pointing out that some danger attends the use of all these mighty agents of power, only to be lessened or removed by proper precautions, there is much truth. But the essential difference between the case of nitro-glycerine and the other substances with which it is compared is there wholly overlooked—the conditions under which it explodes. Until these are known and explained no benefit from its use would warrant our Legislature in permitting any dealing with such a terrible agent of destruction. All Messrs. Nobel and Co.'s explanations and experiments merely show us when and how in some circumstances it does not explode. This is merely beside the question as to practical security. Until some rational account can be given of the fearful havoc caused by the explosion in the harbour of San Francisco, and this Llanberis catastrophe, we never know how or when such ruinous disasters may occur, or how they are to be guarded against. A very eminent practical chemist tells me it would be easy to arrange that the mixture should be separated into two unexplosive parts, only to be combined for use in small portions as wanted. This would seem to meet the danger of the case.

Dangers of transit remind me of my communication to you in some detail soon after the Abergele catastrophe, pointing to the means of preventing goods trains from stopping, shunting, or being made up on passenger lines under any circumstances whatever. I see there have since been several accidents, especially on the London and North-Western, since I wrote, from this very cause, as I foretold; and nothing, I fear, but the interference of Parliament, enforcing some such regulations as I suggested, will put an end to these accidents. Perhaps when some repetition of a collision as fatal as that at Abergele takes place public opinion will be roused to energetic action in the matter.

[I have some remarks to make on Working Men's matters, which I have not time to put in this letter.]

London, Aug. 23.

A MAN OF EXPERIENCE.

P.S.—I see the second of the Slate articles in the pages of the *Journal* on Saturday last. When a few more have appeared I will take up this interesting series in some detail.

MINING, AND THE FOREIGN COPPER SUPPLY.

SIR,—The argument made use of by some of your correspondents is that the immense exportation of copper from Chili is a proof that the mines in that country are still as rich as formerly. Time will exhaust everything; large shipments of mineral, when prices are extremely low, is proof just as it is previous to the stopping of a mine. When the proprietors of a mine find there is no chance of the same paying in future, they set to, and what is called pick out the eyes of the mine—that is, take away all the ore they possibly can at any tribute in the 17 men will work at. So it is, I find, in foreign countries; 20 or 30 years extensively working a mine will exhaust very large deposits in any country. This is the case with a vast number of the richest mines ever discovered in Cornwall and Devon, Staffordshire, and in the Island of Anglesea, as well as in the Island of Cuba and Chili. I am informed that two of the largest smelting works in Chili having during the last few months been shut up, and no less than 1300 workmen, clerks, &c., discharged, owing to immense losses

sustained of late, and so many mines being entirely shut up and abandoned. The winding-up of these concerns account for the increased shipments of copper to this and other countries of late requiring this metal. The very low price obtained for copper the last three or four years is the cause, and a drop in price of at least 30 per cent. has told very seriously on several very promising speculations, many of them may not be reworked again for years, if ever; and as mines, particularly copper, get very deep the mineral invariably falls off 50 per cent. in quality. Late experience proves that very immense deposits of copper are succeeded by either tin or iron pyrites, locally termed mundie; but when it cost 30s. to produce an article marketable only at 20s., it is time to put a stop to such a losing state of things.

There are plenty of new mines yet to be discovered in every country, and to keep pace with the times the owners of land must grant leases on more liberal terms than formerly. Capital, the pioneer of labour, will find out the best district to invest in, and the most liberal in all countries will be best supported.

That copper cannot remain at such a ruinous price much longer is quite clear. One mine after another appears to fail in rapid succession. In Great Britain nearly one-half the copper mines have ceased to exist as copper mines during the last few years, many of which paid whilst the price of copper was 40 per cent. higher than at present excellent dividends. The late panic, owing to the failure of several of the most eminent houses in the metal trade, caused an immense quantity of copper to be thrown on the market; this extra quantity has been gradually declining, and now probably nearly swept off. One extreme generally, if not invariably, succeeds another. One thing is certain, the consumption of copper is on the increase.

A. BENNETT.

PROSPER UNITED.

ALLEGED ILLIBERALITY OF THE LORDS.

We are requested to publish the letter referred to at the late meeting of the adventurers:—

"*Helston, Aug. 9, 1869.*—I cannot attend the meeting to-morrow, nor is it necessary I should do so. I will, however, repeat the course which the lords are prepared to adopt. We are ready to deduct 25 per cent. from the amount of all our claims under the respective sets; to remit the dues for one year, from (say) Sept. 1 next; and to accept a dish of 1-40th for the two years beginning with Sept. 1, 1870, provided the balance of such claims be forthwith paid or secured. This concession is grounded on the basis that the mine will be effectually worked to the satisfaction of the lords, and a company constituted to carry out the undertaking in a proper miner-like manner. Although I lament the heavy outlay and loss sustained by the present adventurers, I must remind you that for many years the mine has not been fairly worked; for several years the shaft in the Duke's land has not been sunk a single fathom, whilst nearly 8 acres of surface have been destroyed, and in the Tregrutha portion the minerals have been extracted, and the shafts not sunk, in a manner of which the lords may justly complain, and have complained, and from which the adventurers are now suffering. There have been no meetings on the mine, the cost-book has been inaccessible to the lords, and the loss to the late pursuer was occasioned by the negligence of those whose duty it was to examine the accounts—this loss, I am told, amounting to nearly 6000l., occasioned the present difficulty. There is an abundance of minerals in this ground, equal to any in Cornwall—well-known lodes of great value—and I am prepared to add the Gwallon sett to Prosper United, if the conditions I have named are complied with. I do not think it probable persons will be found to join the present party, as I stated at the late meeting, and the only course seems to me to be to offer the property for sale under the late Statutory Act. This would enable the adventurers to continue the mine, and others to join them without the complications of the existing partnership.—J. H. Murchison, Esq. FREDERICK HILL.

"I am also requested to add that the amount due to the lords exceeds 2800l."

MINING IN CARDIGANSHIRE.

SIR,—Much has been said of late by different writers on this subject. We have been enlightened on the law of junctions, and of their influence for good. And in order to convey a more correct idea, several well-executed diagrams have appeared, illustrative of the erratic manner in which mineral veins traverse the earth. The more we discover of these wise provisions of the Great Architect of the Universe, the more we are led to admire and adore His matchless goodness and power, in causing even mineral veins to traverse a circuit through the rock, in order that, like the bee, in gathering honey from flower to flower, they may gather from every source the necessary elements, and convey them to the point of junction with their brother alchemists, where, by their united forces, they form the long courses of lead ore of which we read. Cardiganshire is a large one, and although, as before stated, much has been written on her mines, I presume the subject is not exhausted. But my object more particularly in writing now is to direct attention to a comparatively new locality in the county, where the law of junctions may be again illustrated. I refer to the neighbourhood of Talyllyn, and to an estate situated about two miles above that village, known as Ty-nant. On this farm there are five lodes within a space of 50 fathoms, and they are crossing and joining each other like network. They are all more or less laid open to broad daylight, and I believe I am safe in saying that, although at no point are they opened on deeper than 6 feet, yet at every point they produce lead in paying quantities. At one particular place in this deeply interesting piece of ground, there seems, from the line of bearing of each, to be a junction of three lodes; now, if there is really lead in odd numbers, here is a prize; but by the law of junctions I should like to know, of some one more learned than I am, what is likely to be the result of this triune union? However, whatever it may be, it is my opinion that the untold locality alluded to must command more attention ere long. I believe it is well to discuss this junction law (if there be one), or any other natural phenomena in which miners should be interested; and with that object I venture to state that I have found, during an experience of 35 years in mining in Cornwall, Devon, and Wales, that there is no immutable law in such cases. And I believe I am safe in saying that if the several junctions in Nanteos Consols resulted in courses of ore, the result in other mines has been entirely the reverse—in other words, no ore of value has ever been found at a junction of lodes, nor within 8 or 10 fathoms of such points. In the face of such contradictory evidence it is exceedingly difficult for uncalculated minds to believe there is no truth in the old theory—"Where 'tis, there 'tis." Goginan, Aug. 26. R. WILLIAMS.

MINING IN THE ISLE OF MAN.

SIR,—The Vannin Mine, in this island, noticed in your *Journal* of the 7th inst., promises to redeem the character of mining in the Laxey district. A rich lead lode, similar in every respect to (and being in the direct line of) the Great Laxey lode, has now been discovered in the Lezayre Hills, near Glenaldyn stream, and in a most favourable situation for working. The lead (of which some splendid samples have been obtained) is associated with a genuine gossan, than which there is no surer indication of a really good mine. An adit or day level can be brought in to intersect the lode at a depth of 30 fms., besides which there is an unlimited command of water-power.—Aug. 26. MINER.

VIRTUOUS LADY MINE.

SIR,—I have read with much interest the letters which have appeared in the *Journal*, signed "Thos. Barnard," referring to this mine, and I cannot help expressing my surprise that so very valuable a property should have for so long a time escaped the eyes of the keen mining men of the eastern district. These men, if I am not mistaken, are generally on the *qui vive*, and they must now feel bitterly disappointed at losing a mine second to none in England, if the anticipations conveyed in the letter referred to are realised. I believe that there is a spirit again springing up for mining enterprise, and I hope that in this instance the projectors will meet with success, but inasmuch as nothing tends more to establish confidence than a plain, straightforward statement of facts, perhaps Mr. B. will not refuse to answer the following questions:—

- 1.—What amount of capital is actually subscribed for the erection of machinery and developing the mine?
- 2.—What quantity of ore is now broken, and the value thereof per ton?
- 3.—What amount has been expended by the projectors; and is the valuable discovery made above or below the old adit level?
- 4.—What has been the total amount of dividends paid on the thousands of tons of ore already extracted from the mine, the greatest depth of which is 17 fathoms?

If these questions are answered satisfactorily, no doubt the object sought by the publication of Mr. B.'s letter will be attained. I have some recollection of the mine when last worked, and believe it to be a property well worthy of a spirited working; but experience has taught me that it is equally vain to attempt to build mud walls without straw as to attempt working mines successfully without sufficient capital. ENQUIRER.

VIRTUOUS LADY MINE.

SIR,—As the present shareholders will, no doubt, like to hear of our progress, please kindly allow me a little space. The mine commenced to be sunk in a muddy portion of the lode is daily improving, the mundie is changing, or a run or pipe is coming in of gossan and priam, rich with black ore, and the general opinion is that without the shadow of a doubt we are nearing one of the Virtuous Lady "flats," which generally produce thousands of tons of copper ore. We may be two or three weeks, but every hole blasted is expected to produce rocks of solid ore, the entrance to one of the "flats" or "out-throws," or "horizontal courses."

We have stopped driving the end upon this same lode, and have commenced to stop the back; this end now stands as rich, if not richer, than it has been all through the drive. The men are anxious to take tribute pitches at 6s. in 11, but we anticipate further great results here, and have put the men to stop upon stem work. The lode is rich for black ore, and it must be seen that this is an important point, when simply a miner's handful of this very rich ore is worth 2s. 6d. At another point of the mine we expect daily to cut a rich lode; and beg now that you will kindly give my telegram insertion if I should have the opportunity to send it in time for print.

All speed is being made with the machinery, the wheel-pit walls will be finished by Saturday, so that the erection of the water-wheel can be commenced next week. We are not attempting to crush the ore by hand, but intend waiting until our crusher is at work, a month hence, when we shall forthwith commence to sample our ore. I am disposed to set 1000, and only 1000, shares more at 2s. This is, undoubtedly, one of the best investments of the day, and

I predict that within nine months, when the mine is more generally known, and is paying handsome dividends, which it cannot fail to do, the shares will be eagerly sought after at 10s. each, and more likely 30s. each. We have good and most unusual discoveries already, but this is a mere preliminary to what we expect when the mine is more generally known, and more extensive explorations are made to the deep. I state most emphatically there is not the least doubt this mine will become one of the richest ever known, and any person of the least practical knowledge seeing the property, above ground and below, and studying the whole affair, cannot, I should think, fail to be of the same opinion; however, the secret will be known for a positive fact now that the mine is to be thoroughly worked.—5, Abbey Mead, Twickenham, Aug. 26. THOS. J. BARNARD.

HOLMBUSH AND KELLY BRAY MINES.

SIR.—An enquiry appeared in last week's Journal as to the progress of the Holmbush and Kelly Bray United Mines, which, if made at the offices of the company in London, no doubt would have been answered immediately. I, too, am deeply interested in the welfare of this property, and pleased to state that the company's prospects are all that can be desired. The mines have greatly and generally improved, as a reference to the report of the agents to be sent to the Journal will show. The effect of Spargos' winze, below the extreme east of the present company's workings, being worth 40s. per fathom, and Northey's winze, sunk 11 fms. below the 2s. at the extreme west, 30s. per fathom, fully proves to those conversant with mining that Kelly Bray has not been over-estimated. The forking of Holmbush is proceeding as rapidly as possible, and large quantities of ore and muddle broken in the shallow levels, awaiting the completion of the horse-whim to be drawn to surface, while in at a fortnight from the present date several pitches will be set in the 30 fms. level. Ores are also being brought to grass at Kelly Bray faster than the present appliances will admit of their being returned, and this, from the present shallow workings, speaks volumes for the future, when depth shall have been gained. Many are of opinion that the recent discovery of lead in the set is sufficient of itself to make this a most valuable property. A RESIDENT IN THE LOCALITY. Aug. 26.

NEW WHEEL LOVELL.

SIR.—Allow me to make the following suggestion to my fellow-shareholders in this mine. It appears that on Dec. 30, 1868, the accounts passed showed a balance in favour of the adventurers of 22s. 12s. 3d. Let us try at law whether the *debt* shareholders cannot be compelled to pay such a subscription per share as shall put the mine, with full liabilities charged up to that date, into the actual position in which they published to the world that it then stood. A call of 1s. per share on them would do this, and ought clearly to have been made at that date. On the faith of the mine being in that condition they obtained 3s. or more per share for shares worth only 1s. 5s. It is evidently right that they should be compelled to pay. The persons who have held them, and are still shareholders, have the following objections to comply with.—1. That the call was really due then.—2. That, in any case, they have 10s. per share to pay now.—3. That the payment will raise the shares to the market value they held on the faith of the mine being in that condition. If this cannot be done, we might manage as follows:—To petition the Stannaries Court to wind-up the concern, the present shareholders depositing the present market value of their shares for the purpose of re-purchase. The Court will then make out a list of contributors who have held shares during the last two years, and each will have to pay a pro rata subscription towards liquidation. Would not this be feasible according to the recent Act? A SHAREHOLDER.

Meetings of Public Companies.

LEAD MINING IN WALES.

THE BRYNPOSTIG LEAD MINING COMPANY.

The annual general meeting of shareholders was held at the Bush Hotel, Dudley, on Monday, Mr. JOB TAYLOR, J.P. (Mayor of Dudley), in the chair. The report of the directors stated that it was a matter of great personal regret to them to say that they are not yet in a position to recommend the payment of a dividend. The unprecedented amount of rain which continued to fall until the spring has done much to destroy the vegetation, and frustrated their hopes, and completely overpowered the machinery, causing once a complete cessation of all returns of ore, and at the same time doubling the expense of working the mine. The additional machinery spoken of at the meeting in February is nearly all completed, but the directors, who are by far the largest holders of shares in the company, having determined that the new machinery shall be of such power that no unforeseen contingency, such as that from which the company is now suffering, can possibly occur again, think it highly advisable to further capital should be at once raised to the extent of (say) 3000l. The directors are advised by the manager that the various points of operation continue as good as ever, and that when the mine is supplied with power sufficient to enable him to open out more ground, there is nothing to prevent the returns of ore being as large as the most sanguine could possibly desire, and that with a little further patience shareholders will reap an ample return for their outlay. The directors desire to add that their strong confidence in the sterling value of the property is in no way diminished by the temporary falling off of returns, and they have good reason to believe that profitable sales of lead will be resumed in a short time from the present date. There are now over 100 shareholders in the company, showing an increase of about 50 since the meeting in February.

The report of Capt. John Kitto (the manager) stated that since the last half-yearly meeting very little has been done in the mine beyond that recommended in his report presented to the meeting in February—that is, the sinking of the engine-shaft, the driving of the 24 west, and rising above the 24 east, together with the development of the Rhoswen set, and the erection of new pumping machinery, with enlarged pitwork, &c., for the fuller, more speedy, and economic development of the property. The engine-shaft has been sunk to the 36, and will, under ordinary circumstances, have been at least 10 fathoms deeper, but the water to contend against has been so great in proportion to the machinery that it was with the greatest difficulty the sinking could be carried on at all, and only then at considerable additional expense; but this expense, he considers, is more than compensated for by their being down for a new level by the time the new engine was ready to work. A lodge has been cut at the 36, they have driven east on the lode about 10½ fms., and the end is now in good profitable ground, that can be stope to great advantage as soon as the end is sufficiently advanced; this is the case with the 24 east, and the ground from which the returns have previously been made. The 24 has been driven west since the last meeting 16 fms. 4 ft., with a fair amount of success. This is still a splendid trial as a pioneer level, and should by all means be continued, as there is another run of ore ground yet before them. He further remarks that the ore in the 26 east was met with rather sooner than was anticipated, and should this run of ground continue to lengthen at the same rate between the 24 and 36 as it did between the 12 and 24, they will have a long run of valuable ore ground; but he again urges the necessity of sinking the engine-shaft for another level, and extending the 36 east and west on the lode and keeping the same further in advance of the stopes before stopping is resumed, or the ground, however good, can never be worked to advantage, and no ordinary mine can possibly be remunerative if operations are otherwise conducted. The rise above the 24 east is going up through tribute ground that will work at about 4s. per ton as soon as a communication is effected with the 12. The trials in Rhoswen have resulted in the discovery of a nice little bunch of ore between the shallow and deep adits, a sump sunk to prove the ground and to ventilate the deep level. This sump has been completed, and the water has been pumped out, and stopping has been commenced in good ore ground, worth from 10 to 12 cwt. per fathom. The new pumping-engine has been erected, and all its connections are complete, including pitwork from surface to the 24, and equal to the requirements of the mine; this was finished to the adit level, and set to work on Aug. 7, and is doing exceedingly well. The cost of all this new machinery, &c., has necessarily been great, but everything has been well done, and is in first-class working order. It must be clearly understood that during the past half-year a comparatively small amount has been expended in the actual development of the mine, which may be solely attributed to the increase of water and the inadequacy of the machinery, as they were quite unable to proceed with the erection of new and more powerful machinery, as described above, he sincerely hopes and believes that they will be able to proceed with the development of the mine in a satisfactory manner, and that no more will be heard of hindrances occasioned by the water; that the result of the next six months' working will satisfy the shareholders that the mine is all that it has been stated to be, and that the fact of having a good dividend-paying property at no distant date will be fully and fairly established.

The CHAIRMAN said that he addressed his fellow-shareholders upon this occasion with feelings of unequivocal satisfaction so far as the mine *per se* was concerned, although not altogether unmixed with a tinge of disappointment as regards the present financial condition of the enterprise, arising, as the directors had stated in their report, from the unprecedented amount of rain which continued to fall until the spring had far advanced, having destroyed all their calculations, and frustrated their hopes, by completely overpowering the machinery. When he had the pleasure of addressing the shareholders, in February, he pointed out that to ensure an effective and economic development of the mine upon a scale compatible with its proved ore-yielding capabilities it was absolutely imperative to erect more powerful machinery; and the shareholders at once saw the prospective no less than the present importance of giving practical effect to his recommendation. As since the last meeting the number of shareholders had very considerably increased, it might not, perhaps, be inopportune were he to inform those who had recently become associated with the company of the fact he had stated upon a previous occasion—that, unlike most other undertakings, the directors of the Brynpostig Company held a considerable interest in the mine, amounting to more than 4000 of the 12,000 shares into which the enterprise is divided, upon each of which they had paid the full amount, the same as the other shareholders. He referred to this as an assuring evidence that the board was not likely to propose anything that they did not consider would tend to the permanent weal of the mine. His opinion of the property, and of its future substantial success, had in no way altered, although from the adventitious circumstances to which he had adverted, the realisation of successful results had been deferred. The position, however, in which the mine was now placed, by its improved machinery and plant, would enable them in future to avert the vexatious and retarding hindrances arising from such a great rainfall as that which it was too well known to those interested in Welsh mines had so seriously impeded their operations during the current year. Besides this by no means unimportant consideration, the present machinery would enable them to open the mine with a vigorous and upon a scale that would undoubtedly, at no distant date, place Brynpostig among the great mines of the Principality. It should be recollected that the Brynpostig lode was the nearest known parallel to Van,

and when the shaft had been sunk, and another level driven, the returns from the former would, he had no doubt, place the directors in a position to declare dividends, which would favourably compare with the latter, taking into consideration the comparative market value of the respective properties. (Hear, hear.) With those few remarks, he would move that the report and balance-sheet be received and adopted.—Mr. PRYOR seconded the proposition.

Mr. ROSS (Ross and Co.) said that while he endorsed the opinion of the Chairman as to the great mineral value of their property, in common with those shareholders whom he represented, he confessed to some disappointment in regard to the non-declaration of a dividend upon this occasion, and no less than that it was necessary to provide further capital. True, as stated by the Chairman, the capital account, including that now proposed to be raised, favourably compared with that of such mines as the Van, and equally true was it that the property was now placed in a position to enable the executive to develop its resources in the most economic manner, and he thought he could not do better than to put those two statements forward as his reply to the various shareholders who were in correspondence with him upon the subject. In Brynpostig they possessed every element to success, and there was no reason to doubt that when the shaft had been sunk to another level such monthly returns of ore would be made as would well repay all for their patience and outlay. (Hear, hear.)

Mr. WRIGHTMAN, the accountant (who attended on behalf of the secretary), entered somewhat fully into the details of the balance-sheet; and in reply to enquiries explained the principles on which he had proceeded in regard to the depreciation of plant and machinery, and in reduction of preliminary labour cost. He urged the expediency both for directors and shareholders of continuing to treat the accounts as he had done—on sound commercial principles.

The directors agreed in the view expressed. The CHAIRMAN, in reply to a remark from a shareholder, said that he did not know any mine in which so much work had been done at a similar expenditure. He could point to a mine in the same district which had been recently sold for 20,000l., although a spade had not yet been put in the ground. The entire capital of the Brynpostig Company, including that proposed to be raised by the special resolution he would presently propose, did not exceed 15,000l., so that only moderate, to say nothing of large, returns would leave a satisfactory amount of divisible profits.

Mr. PRYOR wished to know the cost of sinking the shaft to another level? Capt. KITTO hoped the shaft would pay for itself, but otherwise the cost would be about 14s. per fathom. He proposed to take the level at 12 fms. The CHAIRMAN added that there were at present two levels, but they wanted another, so that they might have what was called in their district another facing to work in.

Mr. ROSS asked what amount of ore the two stopes would yield per month? Capt. KITTO estimated being able to raise 19 tons during the first month. There was every reason to believe that the ore ground would lengthen, and that in six months hence he would be able to raise between 50 and 60 tons of lead per month. He believed in twelve months they would be in a position to stope two levels fairly, and be proceeding for a third.

Mr. PRYOR asked if the shareholders were to understand that they would have to wait six months before they recommenced returning ore? Capt. KITTO hoped to return an average of 20 tons during the first four months, and from that time gradually increase. As an evidence of the productive character of the mine, he might remind the shareholders that there had been returned from one level between 300 and 400 tons of lead.

The CHAIRMAN said he must be much disappointed if Capt. Kitto did not exceed his estimate during the next four months. Capt. KITTO said if his instructions were to return 40 tons a month he would do it, but it would not be legitimate mining.

Mr. PRYOR asked what amount the ore realised?—Capt. KITTO said it sold for 12s., and the cost of getting it was about 3s. per ton. He knew no mine from which ore could be raised so cheaply as from Brynpostig when the ground had been opened.

The CHAIRMAN said one of the great reasons for asking for more money was, after clearing off the debt balance, to enable them to sink the shaft, and so open out the mine with dispatch and economy. They considered they could do all that was necessary for 1500l.—that is, exclusive of the existing debt.

The motion adopting the report and balance-sheet was put and carried unanimously. Messrs. Killingsworth and Sons were re-elected auditors for the ensuing year.

The meeting was then made special. Mr. OWEN explained the powers under which the company could increase its capital, when it was unanimously resolved—"That under clause 6 of the company's Articles of Association, the capital of the company be increased by the creation of 3000 additional shares of 1s. each; that under clause 7 of the company's Articles of Association, such additional shares be offered at par to the present shareholders *pro rata* to their respective holdings, and any of the said shares not taken up by the present proprietors on or before Tuesday, Sept. 14, be disposed of by the directors in such manner as they may think most beneficial to the company; and that the 3000 additional shares be paid-up by the following instalments:—5s. per share upon application, 5s. per share upon allotment, 5s. per share one month after allotment, and 5s. per share two months after allotment."—The CHAIRMAN said there were parties who would take all the new shares.

A vote of thanks to the Chairman concluded the proceedings.

ENGLISH AND AUSTRALIAN COPPER COMPANY.

An extraordinary general meeting of shareholders was held at the London Tavern, Bishopsgate, on Thursday, Mr. R. A. ROUTH in the chair.

Mr. CHARLES R. ROGERS (the secretary) read the notice convening the meeting. The report was taken as read.

The CHAIRMAN said that the present was not the annual meeting, at which the results of the year were submitted, but the half-yearly meeting, at which a statement of the proceedings of the company during the six months ending December, 1868, were submitted. The gross quantity of ore delivered to the works by the South Australian Mining Association was 2604 tons, against 2524 during the same period of the preceding year. The gross quantity of regular, rough copper, and ore received from other mines had been 1346 tons against 1192; the quantity of ore smelted at the Burra Smelting Works was 1331 tons against 1365; the quantity of regular and ore smelted at the Port Adelaide Smelting Works was 1605 tons against 1550; the quantity of copper made at the Adelaide Smelting Works, including the rough copper sent from the Burra Smelting Works to be refined, was 766 tons against 575; the quantity of copper shipped from South Australia during the half-year ending Dec. 31, has been 598 tons against 555. The ore received from the Burra Mine during the six months ending Dec. 31, 1868, was 2604 tons 5 cwt., against 2524 tons 3 cwt., for the six months ending Dec. 31, 1867. This disposed of all the ore raised to the end of September, 1868, when the extraction of ore was suspended until the new arrangements should be completed for the open working of the mine. The quantity of ore, rough copper, and regular received from other sources in the six months ending Dec. 31, 1868, was 1346 tons 15 cwt., against 1192 tons 11 cwt., for the six months ending Dec. 31, 1867. This shows an increase on the quantity received during the corresponding period of last year; and the latest advices from Adelaide speak of a decided revival in the mining of copper ores, notwithstanding the depressed state of the copper market. The extraordinary shipments since Jan. 1, 1869, from Chili (which, up to June 2, 1869, had exceeded those of the corresponding period of last year by 13,000 tons of fine copper) have had a most depressing effect upon the price of copper during the period since the general meeting in February.

But, of course, it is satisfactory to note that a very large consumption is going on, for the stocks of copper, Chilean and Bolivian, were, on July 15, 1869, 12,400 tons, against 11,000 tons on Jan. 1, 1869. The first portion of the iron-works and materials for the extension of the wharf frontage at Port Adelaide had, by the latest advices, arrived in good order at Adelaide, and the work was being proceeded with. The materials necessary for the erection of the Newcastle smelting works have been shipped, and may be expected to arrive about October. As to the six months' working to Dec. 31, the statement shows an estimated deficiency of 449s. 10s. 3d. This arises partly from the large shipments of copper to Calcutta arriving there at a time of great depression, and when this depression was increased by a large accumulation of stock by other importers; and partly to the low produce of the ores received from the Burra Burra Company during the six months previous to arrangements being made for working the mine on a new and larger scale. The directors, however, feel that the work of the past six months may be very much modified by the succeeding six months, and hope, on the stock-taking at the end of the year, that the operations for the whole year will show a more satisfactory result. The reserve fund at the present date stands at 12,504l. 10s. He (the Chairman) added that the 2600 tons of ore received from the Burra Burra Mine was a very bad class of smelt-

ing ore, being, in fact, the refuse ore remaining on the mine previous to the cessation of operations for the purpose of enlarging the works. Twelve months had elapsed since the works at the Burra Burra were suspended, and the question was whether new capital should be raised by appealing to the public, or whether those interested should subscribe it among themselves. They decided upon raising it among themselves, and the whole had been raised. The re-arrangement of the works had been entrusted to Mr. Darlington, who was perfectly satisfied that the Burra Burra would yet prove an exceedingly valuable mine. From what Mr. Darlington had told him (the Chairman) he thought they might calculate upon receiving from that source at least 12,000 tons per annum. He then proceeded to read extracts from the last despatches, which stated that the railway to the Burra would not be opened till March, and that the terminus had been fixed at about one mile from the company's furnaces, and the same distance from the mines. Rapid progress was being made with the Port Wakefield line. The prospects of receiving large supplies of ore were improving, and they hoped to conduct a more profitable business than for some years past. There could be no doubt (continued the Chairman) that this company should be in a position to offer such terms to those who had ore to dispose of that they could not refuse to let them have the ore to smelt; and in order to do that there must be a very large reduction in the expenses, which would be thus accomplished—so soon as the works at Newcastle could be got in order they would be able to get their coal there for 2s. 6d. per ton, and carry ore there as ballast at the same rate. He (the Chairman) might take this opportunity of stating that the Newcastle works would be the salvation of this company, as they would be the means of effecting a reduction in the smelting charges of something like 50 per cent. When he considered that they formerly paid for their coal no less than 6s. 6d. per ton, and they would in future be able to get it at 2s. 6d. per ton, with a return carriage at the same rate for their ore, he did not think it was too much to say that they would be able to defy the copper market, and to realise profits even with that metal at its present price. As to the wharf at Port Adelaide, its situation was, no doubt, such that would ensure a handsome profit upon the outlay; indeed, already every shilling that had been expended there could be regained by the greatly increased value of the property as it at the present time stood, as it had increased more than double since acquired by the company. His own impression was that it would double in value again. As soon as the railway was finished the whole of the company's teams would, of course, become useless, and that particular item of their stock they would, no doubt, have to realise; and one could hardly expect that the mules and horses which they had had for many years would produce exactly their cost value, but at all events it would be an asset, and he hoped a very considerable one. Whatever loss, however, that might arise would be far more than counterbalanced from having the railway, as they had been for many years compelled to keep a large farm for the purpose of pasturing the mules. He reckoned in that item alone they would save 506l. a-year. Taking all circumstances into consideration, he looked to the future of this company with a great deal of satisfaction, and he spoke as a very large shareholder. As to the deficiency which appeared in the six months' statement, he hoped that when they made up their annual accounts that deficit would disappear; but even if it did not, he should still have confidence that the future position of the company would enable the directors to pay handsome dividends.

Mr. WRIGHTMAN endorsed the views of the Chairman as to the encouraging prospects of the enterprise, and believed that with copper at its present price it would at no distant date resume its dividend-paying position.

The CHAIRMAN, replying to questions, stated that the coal which they would obtain for 2s. 6d. per ton was small coal, and of no value to anybody but smelters, to whose purposes it was in every way equal to that for which the company formerly paid 6d. per ton. The finances of the company were strong, and it had been decided, in the first place, to expend upon the Newcastle works the sum of 5000l., and it was thought that the amount realised by the sale of the horse teams and the farm would not only meet that expenditure, but also the outlay at the Port works, and yet leave a handsome balance towards the reduction of the interest. He thought the works would be completed in about six months. This was the first time after 19 years that the accounts had shown an actual loss, but that, he believed, would pass away when the stock was taken at the end of the year.

After some further discussion, a vote of thanks was passed to the Chairman, when the proceedings terminated.

MINING, METALS, AND MINERALS—PATENT MATTERS.

BY MICHAEL HENRY,

Patent Agent and Adviser, Memb. Soc. Arts, Assoc. Soc. Eng.

Mr. J. E. LILLER, of Bedford, printer, has obtained a patent for apparatus for printing. This invention may be briefly described as consisting in the employment of a band, which is made to travel so as to present to the face of the forme one of the surfaces and to withdraw it again at required intervals. The sheets of paper or other material are placed on the surface of the band, which is so presented and withdrawn, and are thus carried to and from the required position.

Mr. R. FOSTER, of Beeston, Nottingham, horticultural builder, has specified a patent relating to the construction of boilers. Four separate castings are connected together by pipes, which castings also form the flues for the fire and its products. Upon brickwork is a number of fire-bars, and upon this brickwork are secured a number of metal bearers, upon which stand three separate hollow castings. Two of these castings are placed parallel with the fire-bars, and stand upon the bearers, one of their ends being placed close to the casting or framing to which the furnace-door is hung. This frame or casting has a door, to close the front of the ash-pit below the fire-bars. The other ends of the two parallel casting lie close to one side of a third casting, which forms the back, and has its top side somewhat higher than the tops of the two parallel castings. This back casting is connected at each end by pipes with the two parallel castings, and upon the top of it and the parallel castings is placed, and supported by them, a further hollow casting, which is supported by the parallel castings, and is saddle or otherwise shaped, but its shape may be such that the sides thereof will meet and lie upon the tops of the side castings and the back casting before mentioned. The top casting is connected by pipes with the upper ends of the back casting, and the parallel castings are also connected by pipes with the sides of the saddle or otherwise shaped casting. Near the bottom of the sides of the saddle-shaped or otherwise shaped casting, and lying between its sides, is a plate which forms part of or upon which are placed two flues, these flues extending only to a portion of the length of the saddle-shaped or otherwise shaped casting; these casting when placed in position will present a large amount of heating surface. The flames or hot air proceeding from the fuel placed on the fire-bars between the parallel castings will pass between them until they meet the back casting, where they will have an upward direction past the inner end of the plate at the lower end of the sides of the saddle or otherwise shaped casting, where they will divide and pass through the two flues towards the front of the apparatus. They will then turn upwards, and will pass over the two flues, and return to the chimney or flue; thus the hot air will pass thrice the length of the parallel castings before escaping to the flue or chimney. The two flues are stopped short of the front of the apparatus, so that the hot air may return over the flues to the chimney. The front end of the saddle shaped or otherwise shaped casting is opened and closed with a door, which can be opened for the purpose of cleansing the said flues. The water to be heated is fed into the back casting, at the back thereof, by pipes, and after circulating through the whole of the four hollow castings it escapes when heated at the top of the saddle or otherwise shaped casting, and will return to the boiler through the pipes at the lower part of the back of the back casting. The main novelty consists in arranging the boiler in parts, so as to enclose the fire and obtain an extension of flue, which traverses the apparatus thrice prior to its exit to the chimney, and in not exposing the pipes and their connections to the fire.

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SPEED of LATHES may be advantageously INCREASED FIFTY PER CENT., and upwards; it is the most DURABLE STEEL in the Market, and, unlike all other steel, when forged into the desired shape, it REQUIRES NO HARDENING.

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LONDON: MR. HENRY MUSHET, LOMBARD EXCHANGE, E.C. GLASGOW: Messrs. JOHN DOWNIE and CO., 1, ROYAL BANK PLACE. NEW YORK: Messrs. CHARLES CONGREVE AND SON, 104 and 106, JOHN STREET.

The Virtuous Lady Mining Company

(LIMITED).

INCORPORATED UNDER THE COMPANIES ACTS, 1862 AND 1867.

CAPITAL £15,000, IN 15,000 £1 FULLY PAID-UP SHARES.

N.B.—The whole of the shares are taken up. The present quotation is £2 per share, and a limited number only will be disposed of at that price, as they are rapidly advancing in value.

The directors will be chosen at the First General Meeting of Shareholders, which is arranged for Wednesday, September 1, 1869, at Two P.M., at the Bedford Hotel, Tavistock.

BANKERS—THE WEST OF ENGLAND AND SOUTH WALES DISTRICT BANK.

SOLICITOR—MR. EDWARD CHILCOTT, Tavistock.

SECRETARY—MR. THOS. J. BARNARD, 5, Abbey Mead, Tavistock.

The Virtuous Lady Mine is situated about 3 miles south-west of the town of Tavistock.

The sett, which is very extensive, and comprises the most highly mineralised ground in the two counties of Devon and Cornwall, is held upon lease for 21 years, from Sir Massey Lopes, Baronet, dated July, 1869, upon a royalty or dues of 1-18th.

Almost unlimited water-power is available, as the rivers Walkham and Tavy pass through the sett.

Historical records set forth that this mine was worked by the ancients for silver, and that the caverns which were formed by mining industry were in later years inhabited by banditti. It is generally known that well advanced in the present century the mine has returned tens of thousands of tons of rich copper ore. It is, however, quite apparent that in the past the intrinsic value of the property was unknown, and, therefore, never duly appreciated, or it would have been more developed, and the treasures already discovered not left for the present proprietors. It was for years recognised as the mine of mines from its immense returns of rich copper ore, nevertheless the deepest workings are only about 17 fathoms from surface, which will readily show that really practically the mine has hardly been explored at all. The courses of ore so far worked upon are not what are called regularly defined; they are termed "flats;" they have, however, perfect walls, and when descending into the earth have a beautiful underlie; but suddenly the descent ceases, and the courses of ore run away in a "flat" direction for some considerable distance, when they again take a descent, with a fair underlie. It is from these "flats" that tens of thousands of tons of copper have been extracted, and the horizontal courses alone will unquestionably yield great quantities of ore, as they, comparatively speaking, have thus far been but slightly worked; the "flats" are, however, merely out-throws, yes, three only of and from the gigantic quartz lodes which are 100 to 200 feet wide. By a winze or sink that has been put down some 8 fms. in one of the levels the ground below is found producing good and large stones of rich ore, and the evidence appears clear that these immense quartz lodes will when followed to the deep make most extensive lasting deposits of copper ore.

The extensive and remarkable crystallisation and decomposition throughout these great quartz lodes is a further striking evidence of the chemical action caused by affinity, change, or formation of existing very large metallic mineral bodies below, and further, the great cauter lode to the south (upon which operations are now being carried on) has been put down some 8 fms. in, will at about 40 fathoms from surface form a junction with the great north lode, when almost unheard of masses of copper may be expected to be discovered.

The mine is in full operation, a water wheel and crushing machine and all the necessary machinery being in the active course of erection, and temporary dressing floors are laid out in order to dress the ore upon a small scale, until the machinery is put in motion, when more extensive workings generally can be carried on. The machinery will be started by the end of September, when the old work-

ings will be drained, and the shaft commenced to be sunk 15 fathoms deeper and the shaft driven to intersect and cut the lodes at that depth, which can hardly fail to yield immense deposits of copper ore; but apart from any new explorations and anticipated great discoveries in entirely new ground, constant enquiries are being made by "tributers" for "pitches" in the old workings as soon as the mine is drained. To the uninitiated in practical mining it may be observed that "tributers" will take the only little bit of speculation there may be in the mine, as they receive nothing save a certain share (and this for a limited time only), of the sale of the ores they search for and discover.

We will now draw attention to the assays made by Dr. Philpott—No. 1 sample, yellow and black ore, clean in hand substance, 20 per cent. copper, 19½ per cent. silver to the ton; No. 2, peach, pryan, yellow and black ore intermixed, 14½ per cent. copper, 16½ per cent. silver to the ton; No. 3, pryan, with a little black ore, 6½ per cent. copper, and 10½ per cent. silver to the ton.

An elaborate and most careful general mineral analysis by Dr. Philpott, of the mineralised pryan and other matters of the lode now being worked upon, gives a result of the existence of copper, silver, lead, tin, antimony, cobalt, nickel, iron, zinc, and sulphur—strong traces of the whole—but the chief and only paying quantity being copper, the silver contained in it enhancing its value. Mr. J. Harvey, Assayer, of Tavistock, has made several copper assays, the products of different specimens ranging from 6 to 25 per cent. A killas and peach have also been submitted to Dr. Philpott, and Mr. W. Richards, gold and silver assayer, of London, to be tested for gold, by analysis and assay, and out of very small samples, both gentlemen found strong traces of gold. It is not at all unlikely the rich deposits of quartz in the old workings may contain both gold and silver, not visible to the eye, but rich enough to yield a profit upon pulverisation and proper treatment. Reference may be made to the fact that this mine has received large sums of money for its quartz specimens, as simply ornamental works of nature, it having been the rule to search every man coming from underground.

Ample capital is provided to put up most extensive and all necessary machinery, and thoroughly explore the mine, and at the same time the parts of the lodes above water level now being worked upon, which are productive in rich ore, and daily growing more valuable, will at once, and more especially when the machinery is in motion, so that the crusher can be used, furnish profits which can only result in handsome dividends at an early date.

Knowing that reports by mining agents embodied in a prospectus are more or less ignored, none accompany this circular. The mine is in full operation, and can be visited and inspected by any intending investor, mining inspector, or visitor upon their own account, upon application to the secretary for a visit card.

The company is formed, the shares are all taken up, and the mine stands upon its own merits, open for the world to criticise.

Shares can be purchased of the Secretary, Mr. THOS. J. BARNARD, 5, Abbey Mead, Tavistock, who is prepared to transfer a limited number at £2 per share.

Mining Correspondence.

BRITISH MINES.

ABERDAUNANT.—John Roberts, Aug. 25: Both points of operation in this level, east of Rule's shaft, are looking well, with every probability of opening up rich and valuable lead ground. At surface, on the back of this lode, directly over this, we have an important discovery, with several branches of lead coming in, which convinces me that we shall have valuable and profitable lead ground from the level to the surface. The winze under Bennett's stope is quite as good as last reported. In the cross-cut, the deep adit (20 fms.) and the branches of ore are coming in, with every indication likely to lead to large deposits of lead. Should this be the case, we have 90 fms. of backs for ¾ mile in length, and a mine second to none in the district.

BEDFORD CONSOLS.—John Truscott: I have inspected this mine, and beg to submit the following as my report:—About 200 fathoms east of the western boundary, on the top of the hill, there is a 24-in. cylinder rotary engine, but it is not working. The engine-shaft is sunk from 12 to 14 fms. on the course of the lode; the lode is said to be from 4 to 6 ft. wide, composed of capel, quartz, and gossan, spotted with mundle. In consequence of the ladders being removed, and the timber in the shaft being very much out of repair, I could not descend it. About 18 fms. to the north of the engine-shaft the north lode is seen on the back; this lode is said to vary in size from 6 to 7 ft. It is driven on from the middle adit, which would give a perpendicular depth of 60 fms. when it reaches the engine-shaft, or 80 fms. on the course of the lode. The agent informed me that a cross-cut was driven out some distance south from this point to intersect the engine-shaft: 50 fms. west of the engine-shaft a shallow adit cross-cut is sunk 25 fms., and communicated to the adit level, 15 fms. from surface; they are driving fast on the course of the lode, where the lode is 8 ft. wide, composed of capel, quartz, and mundle, spotted with copper ore. The drifage is principally on the south part, the lode yielding 3 tons of arsenical mundle per fathom.—Adit Shaft: They have driven east of shaft on what is called the tin lode about 16 fms.; the first 7 fms. were up to the horse, or a little beyond it, where this part diverges from the engine-shaft lode. From this to the present end the lode is 3 ft. wide, composed of capel, quartz, mundle, and a little tin intermixed. I should recommend a stope to be taken up in the back of this level—say, from 4 to 5 fms. in length, which would then act as a rise, and the ground would be spent at a much less price than were you to rise before stopping. The lode will yield 6 tons of mundle per fm., and there will be a little tin stuff selected from this as well, which I think would pay the cost of it; and it would also prove whether or not there is any deposit of ore lying on or over this bed of mundle. There is also a very strong lode in the bottom of this level for the same length as the one in the back, and I consider it well worthy of attention, and should see it a deeper point. The north part on the engine-shaft is driven past as far as the engine-shaft. The lode in the present end is 1 ft. wide; in driving the lode varies in size, in places from 3 to 4 ft. wide, and presenting kindly appearances. The new south lode is intersected from the middle adit, south of Gawton lode, about 60 fms., and driven west on its course 22 fms.; this is a very kindly lode, varying in size from 2 to 4 ft. It could be worked in the back, I should think, at one-half tribute. It is also driven east of cross-cut 36 fms.; the lode in the present end is from 2 to 3 ft. wide, composed of capel and quartz, spotted with mundle, with a little copper ore; a very kindly lode, with beautiful killas by its side. I should advise, as you have already been working on the top of the hill, the engine-shaft to be sunk to the adit forthwith, and then put it down to a 10 or 15 fm. lift, after which drive back under the large tin lode referred to. You would then see this lode at a deeper level. I should think the drifage at the 15 is too shallow for making a discovery, and, therefore, should suspend it, as this ground would be proved by the stope or rise I have mentioned. My opinion is that you will not get any great discovery near the shaft, but will have to go further east and west for it; but as this shaft is partly sunk, and the engine already erected, perhaps the best way would be to continue the sinking of it, and then drive both ways for the discovery, instead of going to the expense of sinking a new shaft and removing the engine.

BLUE HILLS.—S. Bennetts, Arthur Gripe, Aug. 21: The stope in the lode in the back of the 18 east has improved, and now worth 7½ per fathom. Claridge's lode, in the adit end east, has just been intersected by a slide, which has somewhat disordered it, and rendered it less productive than last reported, although it continues large, and contains some good tin stuff. The engine works well, and the water is drained to nearly the 50 fathom level. In the course of a few days we expect to commence the masonry for the steam-stamps.

BRONFLOYD UNITED.—F. Kemp, Aug. 25: No. 1 Shaft—North Lode: This shaft is down 5 fathoms under the 73, the part of the lode carried thereby is not looking so well as when last reported on; it is composed of blue slate, intermixed with a little lead only, saving work. The part of the lode which is being opened on by the 73 end, to the west of cross-cut, is worth 4 feet wide 2 tons of ore per cubic fathom; the ground at this point still continues hard. The stope to the east of cross-cut, going back towards the winze, is worth 35 cwt. of ore per cubic fathom. The 2 end, to the west of the cross-cut, is producing from 8 to 10 cwt. of ore per fathom. The stope under the 52 is worth 2 tons of ore per cubic fathom. The stope to the west of the winze, in the back of this level, is worth about 1 ton of ore per cubic fathom. The 40 end west is without alteration.—No. 1 Shaft—South Lode: This shaft is sunk 10 fathoms under the adit level, and is 35 fathoms from surface; the first 20 fathoms was sunk on the lode, at which point the shaft was turned out of its regular course, and carried down to the south of the lode. In cutting pit at the 10 the lode was regained, and a level has been opened to the west of the shaft, on the south part of the lode, for about 14 fathoms; the lode throughout this drifage has produced a little lead. There is lead now to be seen in several places in the back of this level. The lode in the present end is chiefly composed of blue slate, with a branch of spar on the footwall, from 4 to 5 in. wide, intermixed with lead and copper ores. Before we commence sinking the shaft it will be advisable to extend this level for a few fathoms, so as to see if this branch will improve or not.

CALDEBECK FELS.—P. Hawke, R. Trevarthen, T. Lamb, Aug. 21: We have completed Linton's engine-shaft 20 fathoms below the deep adit, and are now engaged doing what is requisite to enable us to commence the cross-cut at this level, both north and south to the different lodes; the distance to which we will detail fully in our next report. We have completed the junction winze west 20 fathoms below the deep adit, and we are also engaged at this point in doing what is necessary preparatory to driving both east and west on the north lode, likewise south-east on the caunter lode to the junction with the great south lode at the 10 fm. level. We will not define the value of the different points in operation throughout the mine at present, but content ourselves with saying that we have never been better pleased with our prospect than now. In fact the present prospect, coupled with the quantity of mineral broken in the mine, is such as to enable us to suspend the stopping entirely, and to work the mine in

future wholly on tribute, with the exception of sinking the engine and sump-shafts and driving the ends. We are preparing for the erection of a 13-ft. diameter water-wheel, which with all its appliances are already on the mine, and with little repairs will be made available for stamping and dressing the whole of the refuse ore stuff from the present dressing process, and which will be contracted for at 9s. in 1/6 for the dressed lead ore. We shall weigh off at Wigton next week over 10 tons of copper ore.

CAPE CORNWALL.—Richard Pryor, John Davey, Aug. 24: The ground in the 100 fathom level cross-cut, north of engine-shaft, is composed of more spar, with mundle and spots of copper ore intermixed, which is spare for driving, and indicating as if near a lode or branch. The ground in the 70 fathom level cross-cut, south of shaft, is without much alteration since our last report.

CALSTOCK CONSOLS.—W. B. Collom, Aug. 26: No material alteration has taken place in the appearance of the Dancescombe lode since last report. There are branches of quartz dropping into the lode from the north, which is increasing its size in the bottom part of the end; for 3 ft. wide the lode consists of a quantity of sulphuric mundle, with quartz and pryan, and spotted with a little lead, blende, and copper ore. It would appear there is a loose lode ahead, as all the water is drained down nearly to the bottom of the end.

CARADON CONSOLS.—S. Bennetts, Aug. 24: The 90 cross-cut north has just passed another branch about 1 ft. wide, containing some good ore, and of a very promising character. The No. 2 lode, in the 75 west, is much larger than we have hitherto seen it, being 2 ft. wide, and saving work throughout. There is not much change to notice elsewhere.

CENF BRWNO.—J. Paul, Aug. 24: The water will be out of the bottom of the mine to-day, and the different bargains set to work again at once. The lode in the 80 west is 5 ft. wide, worth 10 cwt. of lead and 12 cwt. of blende ore per fathom. The lode in the two stopes over this level varies from 3 to 5 ft. wide, and will yield on an average 13 cwt. of lead ore per fathom. In the 56, going east, the lode is worth any material change since last report, but I hope we shall have an improvement again here shortly. No change in the 20. I am sorry to hear of a breakage in our crushing-mill, the two frames which carry the rollers having given way, but we hope to get this repaired, and be in full work again, in the course of a day or two.

CHIVERTON MOOR.—G. E. Tremayne, Wm. Bennetts, Aug. 24: In the 85 west the lode is 3½ ft. wide, composed of flookan, quartz, mundle, and worth for lead 16 cwt. per fathom, with great promise for a further improvement; east at this level the lode is 2 ft. wide, producing a little lead. In the 75 west the lode is 3 ft. wide, composed of flookan, soft quartz, and lead, of the latter worth 10 cwt. per fathom. Three stopes of this level are in the direction of the lode, and are worth 15 cwt. of lead per fathom. No change in any other part of the mine since our report of last week. We are getting on very well for our next sampling. On Monday next we shall be quite ready with the quantity named—45 tons.

CUDDEIRA.—Francis Puckey, Aug. 24: We have this week commenced to sink Walker's shaft below the 142, where the shaft is sunk 6 ft. below that level; we intend to put in bearers and elstern, fix the lift, and then cut a trip-plat. In the 42 fm. level end, west of the shaft, we are driving a cross-cut north to the 100 fathom level, and in the 100 fathom level end, the ground in the end is mixed with branches, which is very wet and spare for progress. In the western stope in the back of the 142 the tin part of the lode is 19 ft. wide, and in places producing good work for tin, worth full 20½ per fathom. The lode in the stope in the back of the same level, east of the winze, is from 10 to 12 ft. wide, producing low quality tin stuff. The lode in the 130 fm. level end, driving west, is still very large, with a little tin disseminated throughout, and worth for the width of the lode (12 ft.) 18½ per fathom. In the 130 fm. level end, west of the winze, the lode is 10 ft. wide, and worth 10½ per fm. In the stope east of the same winze, no lode has been taken down for the month. We are cutting into the lode further east from the last named stope, where the lode is large, and producing saving for tin. In the winze sinking below the 130 we are duly carrying down about 4 ft. of the south part of the lode, which is looking very promising, and composed of quartz and peach, and producing good work for tin. The winze is about 7 fathoms in advance of No. 2 end. The lode in the stope in the bottom of the 100, west of the winze, is 12 ft. wide, and places in producing some good work for tin, worth for the width of the lode 22½ per fathom. In driving and stopping the lode on the back of the same level the lode is 6 ft. wide, producing low quality tin stuff, worth about 7½ per fm. The two tribute pitches are without alteration.

CWM ERFIN.—Aug. 24: The lode in the 32, west of the engine-shaft, is 9 in. wide, containing clay-slate, carbonate of lime, copper, and strong spots of silver-lead ore, looking a little more promising than when last reported. A new stope has been set in the bottom of the 20, about 80 fms. east of the boundary; the lode here is 6 ft. wide, and worth 12 cwt. of lead ore per fathom. Taylor's lode is now 4½ fms. below the 19, and is in good course of sinking by six men; the lode is small and unproductive, but carries a well-defined footwall, and the ground favourable for sinking. The various stopes over the back of the deep adit level continue to yield a fair amount of ore; we have 20 men employed here, the lode varying from 1 to 3 yards wide, and will yield on an average 1½ ton of lead ore per fathom. The rise in the back of this level, east of the boundary, is going up in a lode 2½ ft. wide, which is open and ugly, but of no value. The lode in Taylor's drift, going east of the boundary, is 1 ft. wide, composed of a light clay-slate, quartz, blende, and detached cubes of lead ore, at this time a very kindly end; any discovery here would throw new life into the concern, the ground being entire to the surface, which is about 55 fathoms high. The lode in the stope in the bottom of this level, west of Roberts's winze, is 3 ft. wide, and worth 15 cwt. of lead ore per fathom. The lode in the stope over the back of ditto, 35 fms. east of boundary, is 4 ft. wide, and worth 1 ton of lead ore per fathom. Williams's level is being driven forward into the hill at a rapid pace, 8 fms. having been accomplished; the last 14 ft. of lode is at present in the deep level south-west, on deep level vein, the lode is 12 in. wide, principally composed of spar, and showing some strong spots of lead ore. The lode in the pitch over this level, behind the present end, is 2 ft. wide, but has fallen off a little in value; now worth about 10 cwt. of lead ore per fathom. The lode in the 204 yard level, west from Byton's shaft, on Pant-y-go vein, is small, being about 8 in. wide, composed of limestone, spar, &c., producing occasionally some good stones of lead ore. The five tribute pitches working over and under this level are each worth 14 cwt. of lead ore per fathom. The 174, cut of Pant-y-go shaft, is in disordered ground. There is a kindly lode in the 202 west of cross-cut, west of Pant-y-go shaft, from 2 to 3 ft. wide, containing some good strong spots of lead ore. The three tribute pitches below the 174, to

the east and west of Pant-y-go shaft, are each worth 12 cwt. of lead ore per fathom. The north shaft, on Pant-y-frith, has been reaped to the bottom ledge, about 148 yards below the surface, and, as we find the level full of stuff, we have stopped this point for some little time, until we put up stands, pulleys, &c., and attached the Pant-y-frith steam-engine to wind from this shaft. When this is completed we shall be able to clear up this part of the Pant-y-frith vein. Our surface work is progressing favourably.

DOLWEN.—J. Davis, Aug. 26: The south lode is still improving, and it carries good strings of lead ore; the lode is giving out much water. **EAST BOTTLE HILL.**—Henry Hill, Aug. 25: We are progressing as fast as possible in driving the adit end west to communicate with Williams's shaft, but the ground is still very hard, not being out of the influence of the capel yet. We commenced clearing up Williams's again on Monday, but in about 4 feet clearing we came to water again, and were obliged to suspend operations; and we have just met with the back of the old level, which shows that we are near the bottom of the shaft. The ground in the 10 is more favourable for driving; we have completed the driving to the mouth of the adit level, and cleared the choakage, so that the water has got a good course for delivery. We are preparing the floors for dressing, and hope to have a sampling by the end of September. On the whole, we are looking very promising to have a good and lasting mine when further developed.

EAST DARREN.—Aug. 17: In the 116 east the lode is large, and continues to look well, yielding 1½ ton of lead ore per fathom. In the 104 east the lode is from 6 to 7 ft. wide, yielding 1½ ton of lead ore per fathom. In the 92 east the lode is 1½ yard wide, being still disordered by cross-joints, now yielding 1 ton of ore per fathom. In the 92 west the lode is of the same size and character as when last reported on. In the 68 east the lode is 1½ yard wide, yielding small spots of ore at times, but not to value. The tribute pitches throughout the mine still continue to yield good quantities of ore. All other bargains are without any change to notice since last reported on. Our drawing and dressing are progressing favourably, and we shall sample 75 tons on the 30th inst. We have had great quantities of rain for the past few days, which has given our pools and brooks a full supply of water.

EAST PLYNIMMON.—John Paul, August 23: In the deep adit cross-cut, going north (to intersect the Plynimmon lode), the ground is good for driving through, and fair progress is being made. In the adit levels, west from the river Wye, the lode is 4 ft. wide, and contains a little lead ore.

EAST ROSEWARNE.—C. Glasen, Aug. 26: In the 125, west of shaft, the lode is 10 in. wide, producing stones of copper ore, but not enough to value. The 118, west of shaft, the lode is 12 in. wide, worth 6½ per fathom. In the 102 west of shaft, the lode is 12 in. wide, worth 5½ per fathom. We sampled on Wednesday 140 tons of copper ore of good quality.

EAST WHEAL BASSET.—W. Nancarrow, Aug. 25: In the 140, west of new shaft, on the south lode, the lode is 2½ ft. wide, still of a promising character, but not to value. In the 120 cross-cut south, east of new shaft, the ground is letting out water freely, which makes us think we are getting near the lode. In the 110, west of No. 2 cross-cut, the lode is 1½ ft. wide, but without change since last report. The lode in the 125, west of cross-cut, is 1½ ft. wide, still producing stones of copper ore—a kindly lode. The stope in the back of the 125, west of new shaft, is worth 8½ per fathom for copper ore. Nothing new to report in the 130, north of new shaft, towards the tin lode. We sold on the 17th inst. 130½ worth of tin-stuff.

EAST WHEAL GLENVILLE.—G. R. Odgers, W. Bennetts, Aug. 25: The lode in the 120 east is from 2½ to 4 ft. wide, worth 12½ per fathom for tin. In the 65 east the lode is 20 in. wide, and sprigged with ore throughout; this end is now 8 fms. behind the winze sinking below the 55. The 55 east is worth 1½ ton of ore per fathom. In the winze sinking below this level the lode is worth from 3 to 4 tons of ore per fathom. This winze is now sunk 2½ fms. The stope above the 55 is worth 2 tons. In the 45 east we have driven 3 fms. beyond the slide, and we now find green carbonate of copper coming in, which was the case before we met with the course of the lode. In the 55, the lode is 4½ ft. wide, worth 1 ton per fathom. We have made an arrangement with Wneal Glenville for stamping all our tin stuff, and, therefore, our returns of tin for the future will be increased.

EAST WHEAL LOVELL.—R. Quentrell, Aug. 25: The new shaft below the 70 is of the same rich character as reported last week. The shaftmen are still engaged stripping down the north side, from which we have stamped and dressed 5 tons of tin during the week. We shall resume sinking in a few days, when I will fully report thereon. Other places are the same as for some time past.

EAST WHEAL SETON.—Joseph Virian and Son, W. Thomas, Jun., Aug. 26: In the 27 cross-cut, south from Cartwright's shaft, we have cut through the lode to the extent of 5 ft., and commenced driving east and west on it with four men in each end, at 7½ lbs. per fathom; the lode is producing in each end 6 tons of yellow copper ore per fathom, of good quality. We are cutting plat preparatory to sinking Cartwright's shaft below the 27, and driving the 20 cross-cut south to intersect the lode at this point also. There is nothing requiring notice in the other parts of the mine.

EBURY.—F. Killo, Aug. 23: The cross-cut is driven 10 fms. 4 ft. from No. 1 lode. The cross-cut my brother spoke of as the 40 is 10 fathoms, but from what I can learn it was not the main lode that we could see. The Westminster lode is further south. The cross-cut he spoke of was driven from a shaft sunk on the Westminister lode, but it was so full of stuff that we could not get to the Westminister lode, and there is no means of getting down through the old shaft, as it is nearly all crushed together. I cannot see how it can be much further to drive to cut the Westminister lode, but I cannot say the exact distance. I will get a man on Wednesday to go underground with me who has worked there to see if he can point out anything to me, when I will write you again.

F. Killo, August 25: I have been underground to-day with the man who worked on the Westminister lode, and he says that the lode we can see in the 40 is the Westminister lode. We took down a few stones from a hole we could see, and got up about 9 feet, but could not see any place to get further. There is a nice looking lode in that place, with spots of lead in it; the lode is about 3 feet wide. I measured the cross-cut from the lode the Ebury shaft is sunk on (No. 1 lode) to a string 6 fms. 3 ft., and from the string to the Westminister lode (No. 1 lode), which will make the whole length of the cross-cut from No. 1 lode to Westminister lode 9 fms. 4 ft.; this cross-cut is 12 fathoms east of the Ebury shaft. In the 50, from No. 1 lode, to the string, or small lode, 5 fms. 2 ft.; the string is 1 ft. 6 in. wide, and from the string to the present end of the cross-cut is 15 fms. 3 ft., which will make the whole length of the cross-cut 11 fms. 6 ft. 6 in. I think from what I could see of the Westminister lode it underlies much faster than No. 1 lode, so that will give us a greater length of cross-cut in the 50 fm. level. We have now a small slide in the cross-cut, which has made the ground a little easier for driving.

EXMOUTH.—J. Hampton, N. Faulk: The deep adit end is being driven with all speed by six men; it is in a beautiful channel of ground, being a light blue clay-slate. The lode in the end consists of friable quartz, blende, and lead, and will yield of the latter fully 5 cwt. per fathom. The shallow adit, which is driven by four men, is in the quartzose lode, and produces good stones and squats of lead. Both these ends in their southward course are approaching wholly unexplored ground, and will lay open extensive and very profitable tribute ground. The water-wheel and machinery for commencing crushing the lead are being erected as fast as possible, and will soon be at work.

FEDW.—In the engine-shaft the ground is somewhat harder, and progress is not quite what it has been up to this time; depth 10½ fms. Nothing has been met with yet in the cross-cut going south in the deep adit level; the ground is favourable for driving. Next week the filters will commence erecting the steam-engine, the chief buildings for which are completed, and we are well forward with the stack and boiler-house.

FRANK MILLS.—J. Cornish, F. Cornish, N. Addams, Aug. 25: The ground in the 145 rise, north from engine-shaft, is favourable for prospecting, and we expect to communicate with the 130 winze in a few days. We have not intersected any more lode in the cross-cut west, from the 145 south, on the east lode; it is now suspended, and the men are engaged driving a cross-cut east, to prove if any more lode is standing in that direction; the ground is favourable. The east lode, in the 130 south, is 1½ ft. wide, consisting of white iron, quartz, and a little saving work for lead. The 100 south, on west lode, is at present suspended, and the men are engaged in the same level south, on the east lode, driving a cross-cut west, with a view to ventilate the former, and at the same time prove the intermediate ground standing between both lodes. The west lode, in the 84 north, is 3½ ft. wide, producing ½ ton of lead ore per fathom. The winze in the bottom of this level is suspended, and a rise is being put up in the back of the 100 to communicate with it. The stope in the back of the 145 north, on east lode, is yielding ¼ ton of lead ore per fathom. The stope in the back of the 81 is yielding 18 cwt. of lead ore per fathom. Two stopes in the back of the 72 are yielding ¼ ton and ½ ton of ore per fathom. Three stopes in the back of the 60 are yielding, respectively, ¼ ton, ½ ton, and ¾ ton per fathom. All other parts of the mine are without any material change. The scarcity of water is rather against our dressing.

GAWTON COPPER.—G. Rowe, G. Rowe, Jun., Aug. 21: King's engine-shaft is in regular course of sinking below the 82, by six men; the ground is of a good description, and our progress satisfactory. The part of the lode carried in the 82 west, on the south side, is 6 ft. wide, yielding 4 tons of ore per fm. The drifage of the 82 east, on the north part, is just passing a small cross-course, where the lode is 4 ft. wide, yielding a little ore, and showing a very kindly appearance. The whole's stope in the 100, east of the 82, is of Terrell's winze, is worth 8 tons of ore per fathom. Williams's stope, in the bottom of the same level, is worth 6 tons of ore per fathom. Viant's stope, west of Nichole's winze, in the back of the 70, is worth 4 tons of ore per fathom. All other points of operation are without change.

GOGINAN.—August 24: There is nothing to notice been met with in the cross-cut south, at the 110; here we are full of stuff, and the men not able to work, but it will now be cleared in a few days, and the driving resumed, as we have a full supply of surface water now. The lode in the stope over this level 10 fathoms east of winze, will yield 18 cwt. of lead ore per fathom. The lode in the 100, going east, is 5 feet wide, intermixed throughout with lead ore, and worth 1 ton per fathom. In the 4 stopes over the 100, east of rise, the lode will produce on an average 16 cwt. of lead ore per fathom. There is no alteration in any other point.

GREAT RETALLACK.—G. R. Odgers, J. Harris, Aug. 26: No. 1 Lode: In the 40 fm. level north and south the lode is worth 3 cwt. of lead ore per fathom.—No. 2 Lode: We have not taken down the lode in the shaft since our last report; this shaft is now 8 fms. below the 40, and we hope to reach the 50 fm. level in about a month.

GREAT LAXEY.—R. Rowe, Aug. 25: The dry weather continues to prevent our lowering the water much below the 200, I am, therefore, unable to report anything new of the 210 north. The 200 end has further improved since last report, and is now worth 60½ per fathom. The 190 end is without any particular change; the part of the lode we are carrying (about 5 ft. of lode) is worth about 90½ per fathom. Having completed the hoisting of the winze from the 165 to the 180, and thereby opening out a fresh section of rich ore ground. We have this month resumed the driving of the 180 end, by first cutting through the slide, and have just come upon the lode on the other side, and find it to be worth 80½ per fathom, showing now to us in successive levels that there is a continuation of rich ore ground to the north of this large slide, as well as to the south of it. The 165 end driving north, but not yet up to the slide referred to, is worth 70½ per fathom. In the 155 we are of opinion that the lode is split into two, and that the main part is off to the hanging or east side, and for which we have commenced to drive a cross-cut. In the 145, driving on the west vein, the lode is 3 ft. wide, worth about 26½ per fathom.—Dumbell's: The engine-shaft is sunk 7 fms. below the 140; the lode in it has now become poor, the whole of the ore ground having gradually dipped to the north of the shaft. The lode in the 140 end continues to be worth 90½ per fathom, and the stopes north and south of the winze lately hoisted to this level are worth from 90½ to 100½ per fathom. The 125

2. driving west of Holgate's shaft, the lode is worth for tin 4l. per fathom.—New Shaft, Pryor's Lode: The ground in the 106 fm. level cross-cut south is looking favourable, and the men making a little better progress. In the 94, driving west of shaft, the lode is worth for tin 25l. per fathom. In the 91, driving east of shaft, the lode is worth for tin 11l. per fathom. In the 82, driving west of shaft, the lode is worth for tin 20l. per fathom. In the 82, driving east of shaft, the lode is worth for tin 5l. per fathom. In the 82, driving west of shaft, the lode is worth for tin 4l. per fathom. In the 82, driving east of shaft, the lode is worth for tin 9l. per fathom. In the 44, driving east of cross-cut, the branch is poor.

WHEAL SPARNON.—W. Tregay, Aug. 21: The lode in the 30 west end produces good stones of copper ore, and promises improvement; the ground is favourable for driving.

WYE.—John Paul, Aug. 23: Murchison's shaft is being sunk as fast as possible, and we have now from 2 to 3 fms. more only to sink before cross-cutting to the lode, 15 fms. below the adit. In the adit level west the lode is very large, 4 fms. wide, composed of carbonate of lime, blende, and strong spots of lead ore, altogether a very promising looking one at present.

GAS MANUFACTURE—UTILISATION OF WASTE PRODUCTS.—One of the most important papers, considered from a practical point of view, read at the British Association, was that by Mr. Fred. Braby, F.C.S., which we publish in the Supplement to this day's Journal. The reading of his paper was followed by an animated discussion, the opinion of several eminent chemists being strongly expressed in favour of his process, it being specially commended by Dr. Williamson, Prof. Miller, and Prof. Tomlinson.

THE BRYNPOSTIG LEAD MINE.—By the details of the general meeting, which appear in another column, it will be seen that it has been unanimously decided to issue 3000 new shares, in order to provide a sufficient amount of capital to ensure an economic extension of operations. The arrangements, which are now nearly completed, will place the mine in an effective working condition, and at the same time enable the manager to considerably increase the monthly returns, while establishing the success of the enterprise. The present position of the mine is such as to justify the manager in stating that in a few months hence the returns will be between 50 and 60 tons per month.

GREAT VOR.—It is satisfactory to find that the ground west of Ivey's and Edwards's shafts—to which, from its position, such great importance is deservedly attached—is opening out most satisfactorily, presenting every indication of a strong deposit of tin in that direction. There is also a fine productive lode in the 157 fm. level, west of Edwards's, and the 162 fm. level and 194 fm. level ends, coming up under it, show every evidence of entering upon the same rich course of ore. These important improvements have again placed Great Vor in a good permanent position.

THE MOLD MINES.—The entire pitwork at Francis's engine-shaft is now completed. The 24-in. pumps, together with the 25½-in. plunger-lifts, and the splendid 88-in. cylinder pumping-engine just erected by the Perran Company, give to these mines all that is requisite for draining and opening up the riches which they are known to contain. At Francis's shaft sinking will now commence at the 85, on the great Cat Hole lode, a lode which has acquired a wide-spread celebrity for its productiveness. A cross-cut will here be driven to intersect the side vein, or north lode, to which the most eminent geologists attach the highest importance, for it was at precisely the same depth (170 yards) where a similar vein at Minera resulted in the great discovery which has given to that mine its immense wealth.—**PULKRITON LODE:** This has been proved at the 55 and 50 by a cross-cut, and is of great importance; in fact, it is anticipated that the yield of ore from this vein alone will bring the mine into a paying state. The 30 has recently improved in value; that is deemed very important, as when followed it will form a junction with the great Cat Hole lodes at a short distance east of the engine-shaft, where it is reasonable to expect the veins will be greatly enriched, and produce large returns of lead ore. The geological features of the Mold mines strongly resemble those of Minera, which are well known to be the most productive in the United Kingdom; and, from the character of these indications, further important discoveries may shortly be expected, giving every prospect to the shareholders of speedy returns. The company's offices are on the mines, and its affairs are managed by a thoroughly intelligent and practical direction, who meet regularly on the property, giving their personal and careful attention to all its details, taking a practical interest in the works, being resolved that no effort on their part shall be wanting to ensure its success, and to make a permanent and secure investment. The duties of secretary are entrusted to Mr. Edward Stokes Robert, Public Office, Chester, whose position in that city incurs an amount of public responsibility which is also a further guarantee of an impartial observance of the interests of the general investor.

From the reports on HOLMBUSH and KELLY BRAY UNITED MINES it seems that the improvements are occurring faster than could possibly be expected, and that there is no doubt in a few months this property will become one of the most productive in the West of England.

CLITTERS is much improved, and now bids fair to become a dividend-paying mine.

SOUTH CARN BREA.—Messrs. R. H. Pike and Son, the pursers, have communicated to the shareholders the satisfactory intelligence that the mine is drained, and the lode throughout proved to be quite equal to anticipations. There is a large amount of tin ground being worked of a good percentage for tin, and they hope to raise enough tinstuff to keep 25 heads of stamps working day and night. In the course of a month they will begin to sink the shaft, and when they have extended the slope out there stop out more stone, they will get their remaining 30 heads in working order. Upon the whole Capt. Davey, Michell, and Knotwell consider the prospects of the mine fully equal to the former reports.

WEST MARIA AND FORTESCUE is still looking well, and bids fair to become one of the greatest mines in Devon.

NEW WHEAL LOVELL MINE MANAGEMENT.—The remarks in last Saturday's Journal must have taken the majority of shareholders by surprise. Some months since, on the faith of the printed statement sent out by the management, I was induced to purchase shares at 2l. 15s. each. These statements, it now appears, were all false. Is there no remedy for unfortunates like myself? or, must we submit quietly? This state of things is becoming serious. After Clifford, and other exposures of like kind, I think it high time some notice should be taken of the way mines are managed, or mismanaged, in Cornwall. It can hardly be credited that Mr. Fred. Hill, F.G.S., would lend himself to this deception. Perhaps that gentleman will inform us (through the Journal) who is answerable to the—DECEIVED SHAREHOLDER.

BEDFORD CONSOLS.—A correspondent says, "I inspected this mine on Tuesday, the 24th instant, and from the appearance of the lode-stuff at surface, I am confident you are near a large deposit of ore. I find the lode at Gawton in the 82 fm. level is looking splendid—this speaks well for Bedford Consols."

MINING IN THE TAVISTOCK DISTRICT is looking more promising than for some time past. At the present time there are two or three mines that will make good properties, and pay purchasers well for investing. **BEDFORD CONSOLS**, adjoining Gawton United, from the lode and the stuff to be seen at surface, I feel confident are near a large deposit of copper. Gawton and Okel Tor are looking splendid in the 80 fm. level. There is little doubt Bedford Consols will turn out quite equal to its neighbour, Devon and Cornwall United, adjoining, on parallel lodes; after selling at 20l. per share, was abandoned by the old party, after selling 70,000l. worth of copper, is now being worked by a fresh company. In the 46, west of the whim, the lode is producing large rocks of copper, and a good course of copper is expected daily. There are three tribute pitches, working at a fair profit. There is little doubt both this and Bedford Consols will turn out successful adventures, both mines being at present shallow, the deepest only 46 fathoms under level, with large masses of lode defined, with great quantities of blende in the beds. At **WEST MARIA** (adjoining Great Devon Consols, in the Tavistock district) there is a fine course of copper going down in Welleford's shaft, under the 60, in course of sinking, for the length of shaft worth 60l. per fathom. All that is required is an improvement in the copper standard, which would give an impetus to properties of this description, and place them in the Dividend List.

HINGTON DOWN is looking much better, and several important points to come off. The Princess Mine, adjoining, is also looking well, so that Hington Down district will prove a trump for mining.

SOUTH HERODSFOT.—This mine may any day become one of the richest silver-lead mines in the kingdom. Its close proximity, to the south, to Herodsfot, and the fact that the rich silver lodes of the latter go right into it, would appear to make the adventure more a certainty than a speculation.

THE CORNISH MINE SHARE MARKET.—With the exception of one or two mines, whose prospects have recently improved, most of the stock in the Cornish Mine Share Market have exhibited scarcely any alteration in price during the week. The following mines have received the chief attention in the share market since last week:—Marke Valley, 8½ to 9½; North Trekerby, 14s. to 16s.; Wheal Seton, 35 to 37½; East Caradon, 5½ to 5¾; South Frances, said to be looking better, enquired for at 13 to 14; Emily Honietta in demand at 12 to 13, owing to the cutting of the lode at East Seton, the adjoining sett. Tin stock shows scarcely any alteration. East Lovell firmer, at 17½ to 18½; Providence steady at 36 to 38; Cook's Kitchen, 13½ to 13¾; West Frances flatter, 47 to 49; South Condurrow, 30s. to 32s.; Wheal Uny, 3½ to 3¾; Great Wheal Vor weaker, 12 to 15½; Wheal Jane firmer, 42 to 44; Ding Dong, 22 to 23; East Pool, 7 to 7½; New Lovell flat, 25s. to 26s. West Chiverton is said to be looking considerably better. This mine is certainly one of the most splendid successes Cornwall has ever developed. It has several effective elements of a triumphant result, and, taking everything into account, it is one of the most profitable investments of the day.

A new mine, West Trumpet United, is expected to commence working shortly in Wendron. It is proposed to work the mine, which will be divided into 1000 shares of 2l. each, on the cost-book principle. The sett comprises the Trenethick estate, and adjoins Trumpet Consols, which pays good dividends. Mr. T. P. Tyacke is elected pursuer, and Capt. Oats manager.

The principal feature for the week has been a rise in East Setons from 20s. to 25s. 60s., in consequence of a discovery of a good copper lode.

North Levant will pay next Saturday 1000l. in dividends, and show a larger balance in hand and a better mine than last quarter.—West Briton.

At the Agricultural Society of New South Wales, Sydney, meeting in May last, the first prize, class 205, for portable steam-engine suitable to agricultural requirements, was awarded to the 12-horse power portable steam-engine of Clayton and Shuttleworth, with enlarged fire-box for burning wood, otherwise adapted for agricultural purposes, to P. N. Russell and Co., Sydney.

With the Journal of this week a SUPPLEMENT SHEET is given, which contains—the British Association: Diary of Proceedings; Gas Manufacture—Utilisation of Waste Products (F. Braby); Statistics of Invention, illustrating the Policy of a Patent Law (H. Dircks); New Bampfylde Copper Mine; Gas from Mixed Coal (S. Macadam); Internal Temperature of the Earth; Extension of our Coal Fields (J. Randall); Boiler Explosions, and Government Inspection—Conference of Miners—Manufacture of Iron and Steel (G. H. Benson and W. G. Valentini)—Foreign Mining and Metallurgy—Mineral Wealth of Portugal—The Mining Interests—On Slate and Slate Quarries, Chapter III.—Reviews: Field Geology; Merchant's Ready Reckoner—Foreign Mine Reports—Australian Mining Company, &c.

The Mining Market; Prices of Metals, Ores, &c.

METAL MARKET—LONDON, AUG. 27, 1869.

COPPER.		IRON.	
Best selected, p. ton	76 0 0	Bars Welsh, in London	6 15 0
Tough cake and tile	74 0 0	Ditto, to arrive	6 15 0
Sheathing & sheets	79 0 0	Nail rods, in London	7 2 6
Boils	78 0 0	Do., Standard, in London	7 10 0
Bottoms	81 0 0	Bars ditto	7 7 6
Old (Exchange)	65 0 0	Hoops ditto	8 0 0
Burra Burra	77 0 0	Sheets, single	9 0 0
Wire	0 1 0	Pig No. 1, in Wales	3 15 0
Tubes	0 11¼ 0	Refined metal, ditto	4 0 0
BRASS.		Do., common ditto	6 0 0
Sheets	94 0 0	Do., March-Tyneor Tees	6 10 0
Wire	8¼d.-8½d.	Do., railway, in Wales	5 0 0
Tubes	10¼d.-11¼d.	Do., Swed. in London	9 17 0
Yellow Metal Sheath, p. lb.	7d.	To arrive	10 0 0
Sheets	6¾d.	Pig No. 1, in Clyde	2 12 3
SPELTHER.		Do. f.o.b. Tyneor Tees	2 9 6
Foreign on the spot	20 15 0	Do. Nos. 3, 4, f.o.b. do.	2 6 2
" to arrive	20 15 0	Railway chairs	5 10 0
ZINC.		" spikes	0 12 0
In sheets	26 0 0	Indian Charcoal Pigs,	6 0 0
TIN.		In London, p. ton	6 0 10
English blocks	123 0 0	STEEL.	
Do., bars (in barrels)	134 0 0	Swed., in kgs (rolled)	— 0 0
Do., refined	131 0 0	(hammered)	14 15 0
Banca	135 0 0	Ditto, in faggots	15 15 0
Straits	131 0 0	English, spring	19 0 23
TIN-PLATES.		QUICKSILVER (p. bottle)	6 17 0
IC Charcoal, 1st qua.	1 8 0	LEAD.	
IX Ditto, 1st quality	1 14 0	English Pig, com.	19 0 0
IX Ditto, 2d quality	1 6 1	Ditto, L.B.	19 10 0
IX Ditto, 3d quality	1 12 0	Ditto, W.B.	20 10 0
IX Coke	2 6 1	Ditto, sheet	19 15 0
IX Ditto	1 8 6	Ditto, red lead	20 0 20
Canada plates, p. ton	13 10 0	Ditto, white	27 0 30
Ditto, at works	12 10 0	Ditto, patent shot	22 10 0
		Spanish	18 10 0

* At the works, 1s. to 1s. 6d. per box less.

REMARKS.—A somewhat better feeling has been manifested in the Metal Market during the past week, and rather more business has been done, as compared with the last few weeks, though still the market is very far from being in a lively condition; however, we hope that as the autumn advances we shall find a considerable improvement taking place. A few orders have arrived from India, which, we trust, will prove an earnest of a good number coming to hand ere long, and as the accounts from thence continue to be by no means unfavourable, we may fairly expect that a resumption of our former activity with that part of the empire will take place at no distant day. Prices, with regard to one particular metal, have become somewhat firmer, and it is to be hoped that this state of things will continue, as it is very desirable to see an improvement in this metal, both as regards price and extent of business, after having been so long in a depressed condition; and we trust that a more satisfactory state of the market, so far as this metal is concerned especially, may take place; and as this may be considered our principal metal, it might follow that a good business done in this may lead to increased activity in other metals. The continued easiness of the Money Market has not yet fully answered the expectations which were entertained that it would lead to an improvement in business; but we trust that we shall eventually experience the good effects resulting from it, and we may be sure that when a more extended demand sets in the present state of monetary affairs will tend greatly to facilitate all commercial transactions, and will enable operations to be entered into which in a different condition of the Money Market could not be entertained. The return of fine weather, which now appears likely to continue for some time, will have the effect of causing a greater degree of cheerfulness to prevail, as it will enable the harvest to be gathered in successfully, which will have a most beneficial influence upon the prosperity of the country.

COPPER.—The market for this metal has decidedly improved, partly in consequence of advices from Valparaiso, dated July 17, stating the charters for the first half of the month to be only 500 tons copper. Chili bar is now firm, at 69l. cash, at which business has been done; and ore is quoted at 13s. 6d. to 13s. 9d. per unit. A better business has also been done in English, and prices have an upward tendency.

IRON.—In Staffordshire the works continue as fully employed as they were, and the steady receipt of orders gives hopes of a sustained quiet demand through the autumn. The requirements for rails are still large, and the prices firm. Should orders be pressed for early delivery, an advance seems not improbable. In Welsh the Russian and American orders received continue to keep the rail mills well employed. The heat causes some reduction in the make, but after three or four weeks the men will be able to stand the fire better. Both the export and home demand for bars is rather slow, and for pigs there is scarcely such a sale as three months ago. The home enquiry for rails shows a slight improvement. In Swedish iron the enquiry is now limited. In Scotch pig-iron a steady improvement has occurred during the week, and warrants have been freely dealt in; and there has been no falling off in the shipping demand. The last prices received from Glasgow were 52s. 6d. cash, and 52s. 9d. one month.

LEAD.—A steady business continues to be done, and prices remain without alteration.

TIN.—The market for English is steady at the official prices. There is not now much business doing in Straits, but the price has somewhat improved, and now remains firm at 131l. to 131l. 10s. cash.

SPELTHER still continues without an improvement, and transactions are exceedingly limited. The price for parcels on the spot remains nominally at 20l. 15s.

TIN-PLATES.—Makers report a better rate for coke qualities, chiefly for the United States.

STEEL remains without activity.

QUICKSILVER.—Transactions very limited.

THE IRON TRADE.—(Griffiths' Weekly Report).—There is no change in the tone of the market this week. The general trade appears to look quiet as well. The railway meetings which have taken place are calculated rather to inspire confidence than otherwise. The information given by the Great Western Company, the meeting of the Metropolitan, and its dividend of 4 per cent., are satisfactory. The same may be said of the South-Eastern meeting, where Sir Edwin Watkin was received with enthusiasm, and congratulated by the shareholders. The Great Eastern will immediately commence their Stamford Hill branch, and the South-Eastern begin immediately to construct the Greenwich line, which augurs well for the iron trade. With this favourable weather the harvest will be gathered successfully. The bullion held by the Banks of England and France is much in excess of the usual averages. The tendency on the Stock Exchange is to increase values for all securities. We, therefore, are justified in expecting a complete resuscitation in the credit of all railway companies, and, at the same time, we expect to see steady progress made in the iron trade. The hot weather has much interfered with puddling this week, particularly in South Staffordshire. Rails continue good, with buyers on the market for several parcels for delivery next season. The tin-plate trade continues steady; the demand quite as good as reported last week.—75, Old Broad-street, London, Aug. 27.

THE COPPER TRADE.—Messrs. James and Shakespeare.—On Monday a telegram from New York announced that the Chili charters from July 2 to 17 were only 300 tons of copper in ore and regulus for England, and 200 tons of bars for France. This great falling off had an immediate influence, and sales of bars were at once effected at 69l. spot, and 70l. for arrival. Further sales have been subsequently made at these prices, and altogether several hundred tons have been disposed of, the market remaining firm. We make no alteration in our prices for English, but some smelters are demanding higher rates.

Messrs. Vivian, Younger, and Bond.—The demand for Chili bars has been active during the week, and prices have advanced to 69l. cash, and 70l. for distant arrival, or for three months' prompt. A good business was done at these rates; at one point, indeed, there were buyers at them and

no sellers, but as we close the market is not so brisk, and these quotations would be readily accepted. On Monday telegrams were received from New York advising the charters from Chili, for the fortnight ending July 16, as only 230 tons bars and ingots, and 320 tons pure copper in ores and regulus, the former being on French account. The written advices since received rather confirm the idea previously expressed that the time has arrived when we shall be getting very moderate supplies, and, considering the really enormous consumption of copper this year, holders still maintain their opinion that present prices are likely to be well maintained, and that any considerable change would probably be for the better.

There has been more business doing in the MINING SHARE MARKET this week, and one or two mines have risen considerably in market value. Those most in demand have been West Chiverton, Chiverton Valley, East Lovell, Prince of Wales, East Seton, Great Vor, Don Pedro del Rey, Frontino and Bolivia, and a few others. The standard for copper ores on Thursday declined 10s. per ton.

West Chiverton shares have been in active demand at 51 to 53, cum dividend of 2l. per share, to be declared at the meeting in Cornwall this day. The dividends paid by this mine have now been 112,125l., or 350 per cent. on a capital of 30,000l. The first dividend was paid in Oct., 1863, 2250l.; in 1864, 9000l.; in 1865, 13,125l.; in 1866, 21,750l.; in 1867, 24,000l.; in 1868, 24,000l.; in 1869, up to present time, 18,000l., and the mine never looked better.

East Grenville, 3½ to 3¾; the 120 east is worth 12l. per fathom for tin; the 55 east, 1½ ton of copper ore per fathom; the winze below the 55 is worth 3 to 4 tons per fathom; the slope, 2 to 3 tons. Arrangements have been made to stamp the tinstuff at Wheal Grenville, so that larger returns will be made for the future. Wheal Grenville, 45s. to 50s.; in the 90 cross-cut north the appearances are such as to lead the agents to suppose the lode is not far off. An idea had gained ground that the dropper lately passed through was the lode split up into branches, but this cannot be the case, they say, as they all dip north, whereas the lode is known to dip south, and no footwall has yet been seen. The first dropper met with is still worth 12l. per fm. In driving it west it is converging towards the run of the lode, and as this is the great point of the mine, a few days may show a discovery. Anglo-Argentine, 1-16th dis. to 1-16th prem.; Bedford Consols, 56s. 3d. to 58s. 9d.; Bedford United, 32s. 6d. to 37s. 6d.

East Setons, after reaching 3½, receded, and leave off 2½ to 2¾; the lode at Cartwright's shaft, in the 25, below the adit, is from 3½ to 4 ft. wide, and producing 5 tons of yellow copper ore, worth 20l. per fm. As the lode underlies 4½ ft. in a fathom it will be at the shaft in 4 fms. further sinking, which will be in about five or six weeks. Redmoor, 5s. to 7s. 6d.; the lode here is now worth 20l. per fathom. Caldbeck Fells, 31s. 3d. to 33s. 9d. Carn Brea, 12 to 14. Prince of Wales, 22s. 6d. to 24s. 6d.; the 65 west is worth 20l. per fathom; the 65 east is driving by the side of the lode; the 55 fm. level cross-cut north still yields good stones of ore occasionally. The sampling is close upon 110 tons. Chiverton Moor, 3 to 3½. Chiverton Valleys have advanced to 4½, but we have not heard of any change at the mine. Chontales, 1½ to 1¾; Cook's Kitchen, 13½ to 13¾; Ding Dong, 18 to 20; Drake Walls, 16s. to 18s.; Dolcoath, 120 to 130; Don Pedro, 4½ to 4¾; East Caradon, 5 to 5½; Marke Valley, 8½ to 8¾; the ends on Marke's lode are worth 2 tons of ore per fathom; Sarum lode, 2 tons; and Rosedown lode, 9 tons per fathom. Great Wheal Vor, 15½ to 16½; the mine sold, on Aug. 21, 44 tons 16 cwt. of tin, for 3442l. 7s. 1d. The western part of the mine is opening out well. East Gunnislake, 23s. to 25s.; East Lovell, 18 to 18½; East Pool, 7 to 7½; Frontino and Bolivia, 1½ to 1¾; General Brazilian, 3s. 9d. to 4s. 9d. prem.; Great Laxey, 18 to 19; Great North Laxey, ¾ to 1¼; Great Rock, 9 to 10; Herodsfot, 43 to 45.

South Carn Brea, 15s. to 20s.; a report from the agent, to the effect that the mine has been drained to the bottom, has been circulated among the shareholders. The shaft has been sunk 2 fms. below the 130, north part of lode worth 15l. per fm. The 130 west is worth 15l. per fathom, and set to drive at 9l. per fathom. A winze has been set from the 120 to the 130, which will open out a large extent of tin ground. The winze from the 110 to the 120 is worth 10l. per fm. The agents hope to raise tin sufficient to keep 28 heads of stamps at work night and day. Holmbush and Kelly Bray, 3½ to 4; Mineral Bottom, 2½ to 2¾; New Seton, 45½ to 47½; North Crofty, 1½ to 1¾; North Downs, 10s. to 12s. 6d.; North Roskear, 5 to 6; North Trekerby, 13s. to 15s.; Okel Tor, 12s. to 14s.; Princess of Wales, 3s. 9d. to 6s. 3d.; Providence Mines, 37 to 39; South Condurrow, 27s. 6d. to 30s.; South Crofty, 11 to 13; Spearne Moor, 20 to 22. Tincroft, 17 to 18; the usual dividend of 10s. is expected at the meeting, on Tuesday. Trumpet Consols, 22 to 23; Van, 34 to 36; West Frances, 48 to 50; West Maria and Fortescue, 14s. to 16s.; West Prince of Wales, 2s. 6d. to 5s.; West Seton, 180 to 190; Wheal Agar, 1½ to 1¾; Wheal Chiverton, 2½ to 2¾; Wheal Jane, 42 to 42½; Wheal Kitty (St. Agnes), 5 to 5½; Wheal Mary Ann, 16½ to 17½; Wheal Seton, 35 to 40; Wheal Trelawny, 5½ to 6½; Wheal Uny, 3½ to 3¾. Bronlloyd shares have been in demand, at 3½ to 4.

The market for Foreign Mining Shares, on the Stock Exchange, has again been restricted, and prices are without any material alteration from last week. Frontino and Bolivia shares are in demand, at higher quotations, in anticipation of a larger remittance of gold by the monthly mail; and St. John del Rey shares are slightly firmer; Pestarena shares have been enquired for, at an improvement, and there has been a steady market for Yudanamatuna shares, while, on the other hand, Don Pedro and Port Phillip shares are rather flatter. The following are the closing prices:—Frontino and Bolivia, 25s. to 27s.; St. John del Rey, 17½ to 17¾; Chontales, 1 3-16ths to 1 5-16ths; Don Pedro, 3 9-16ths to 3 11-16ths prem.; Taquaril, 1-16th to ¼ prem.; Pestarena, 1 1-16 to 1 3-16ths; Rossa Grande, ¼ to ½ prem.; Port Phillip, 1 9-16ths to 1 11-16ths; Anglo-Brazilian, ¼ to 1-16th dis.; Anglo-Italian, ¼ dis. to par; Yudanamatuna, 1 7-16ths to 1 9-16ths. In British descriptions Van is still the great centre of attraction. Nothing can be more satisfactory than the manner in which this mine is opening out; the new shaft, which is 190 fms. from the old workings gives promise of quite a new mine, no way inferior to that portion which has already created such a strong feeling in favour of mining enterprises generally, and to this mine in particular. We also have to report a very fine improvement in the winze in the bottom of the 15 fm. level, which is from 5 to 6 tons per cubic fathom. West Chiverton shares are firm, at 51½ to 52½; Van, 35 to 37; Great Wheal Vor, 15½ to 16½, and in demand, on improved prospects at the mine; Great Laxey, 18½ to 19; Chiverton, 2½ to 2¾; Prince of Wales, 22s. to 24s., ex div.; Chiverton Moor, 3 to 3½; East Caradon, 5½ to 5¾; West Caradon, 5½ to 6; Marke Valley, 8 to 8½; East Seton, 2½ to 3; these shares have fluctuated rather considerably, having at one time attained the price of 3½; they relaxed, and close at quotations.

The TAN-YR-ALLT MINING COMPANY, with a capital of 30,000l., in shares of 3l. each, has been formed for the purpose of carrying on more vigorous operations at Llanengan, near Pwllheli, in Carnarvonshire. The rock formation is highly congenial for mineral, and the lease has been obtained for 30 years, at a dead rent of 10l. per annum, merging into a royalty of 1-16th. The shaft has only been sunk about 14 fathoms from surface, and the level driven east and west is only about 24 fathoms in length, yet about 120 tons of silver-lead ore of full average quality has been raised. The lode has, therefore, produced about 6 tons of lead ore per fathom, or quite 70l. per fathom for the length of the level driven, and the western end now contains good solid stones of lead. There is every probability that in the deeper levels the ore ground will lengthen considerably, in a westwardly direction more particularly, as it is the opinion of the resident agent, judging from the cleavage of the rock, that this body of ore dips to the westward. The Tan-yr-Allt lode has been traced for three miles east of this mine, and having been worked on to a depth of 45 yards, so long ago as 1788, must have been very productive, as the excavations on it are large and extensive. Were there not this evidence of the continuity and vigour of the lode there could not be any fear of its dying out, seeing that, although the part of the lode driven on in the level is only 4 feet wide, it has been cut into on the south 13 or 14 feet, and bored into north about 3 feet, and neither north nor south wall has yet been met with. The purchase-money paid for the mine being 26,000l., the balance of the capital (4000l.) will be applicable to purchasing and erecting the additional machinery and plant required for the more vigorous prosecution of the mine. Capt. Richard Evans has reported very favourably upon the property, and remarks that having been practically connected

with mining for more than 30 years, especially in Cardiganshire and Montgomeryshire, he has never seen any discovery equal to it, according to the depth, and the skill, and the trial the mine has had. It is calculated that when the arrangements now in progress have been completed, a profit will be realised of something like 75 per cent. upon the value of the ore raised. It may be mentioned that since the mine has become the property of the company there have been acquired some important extensions of ground upon the course of the lode.

At Redruth Ticketing, on Thursday, 1952 tons of ore were sold, realising 10,260*l*. 18*s*. 6*d*. The particulars of the sale were—Average standard, 91*l*. 11*s*.; average produce, 83; average price per ton, 5*l*. 5*s*.; quantity of fine copper, 170 tons 15 cwt*s*. The following are the particulars of the sales during the past month:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
July 29	2952	93 13 0	83	5 16	12 <i>s</i> . 2 <i>d</i> .	57 16
Aug. 5	2373	98 11 0	83	3 16 0	11 5	57 16
" 12	1252	99 11 0	83	3 13 0	11 4	56 16 0
" 19	2774	103 0 0	83	3 11 0	11 7	58 3 0
" 26	1952	91 11 0	83	5 5 0	12 2	61 0 0

Compared with last week's sale, the decline has been in the standard 10*s*. and in the price per ton of ore about 1*s*. Compared with the corresponding sale of last month, the standard has been about stationary.

At Wheal Owles meeting, on Aug. 20, the accounts for the three months ending June showed a credit balance of 269*l*. 10*s*. 7*d*. The profit on the three months' working was 730*l*. 4*s*. 8*d*. A dividend of 720*l*. (9*l*. per share) was declared, and 1971*l*. 8*s*. 7*d*. carried to credit of next account. During the quarter 188 fms. 4 ft. 2 in. has been driven in levels and 59 fms. 4 ft. 6 in. sunk in shafts and winzes 218 fms. 2 ft. 8 in. There are 41 paces of men stopping on tuff tin, and 26 paces set on tribute.

At Bedford United Mines meeting, on Aug. 19 (Mr. W. A. Buckley in the chair), the accounts for the four months ending June showed a credit balance of 202*l*. 13*s*. 7*d*. The loss on the four months' working was 282*l*. 9*s*. 3*d*. A call of 5*s*. per share was made. Capt. James Phillips reported that their loss during the period had been so great, but reported that from the very promising character of the Wheal Marquis lode, and the improved quality of the ore in the deeper levels, he believes that continuing to work operations on the present scale will soon put the mine in much better position.

At New Wheal Seta Mine meeting, on Tuesday, the accounts for the four months ending June showed a debit balance of 421*l*. 15*s*. 1*d*. A call of 2*s*. per share was made. Capt. Malachi Bath reported that he is still of opinion that this will make a good and profitable mine by a little deeper sinking. If it does not turn out well he will be much disappointed, looking at the fine courses of ore in West Wheal Seta, with the same elvan course, near which they had their best courses of ore traversing the set.

At West Basset Mine meeting, on Wednesday (Mr. W. A. Thomas in the chair), the accounts for April and May showed a debit balance amounting to 688*l*. 4*s*. 1*d*. Capt. George Lightly reported upon the various points of operation. The lower levels on the middle lode present a favourable appearance.

At Great South Tolgus Mine meeting, on Tuesday (Mr. S. Steele in the chair), the accounts for May and June showed a credit balance of 76*l*. 13*s*. 9*d*. A call of 2*s*. per share was made. Capt. John Daw reported that the shortness of water had alone diminished their returns. They have in the stamps 5 tons of tin unstamped. On the tin lode they are still opening productive ground which will pay to work at the present price of tin.

At Hingston Down Mine meeting, on Tuesday (Mr. R. McCallan in the chair), the accounts for the four months ending July showed a debit balance of 69*l*. 1*s*. 6*d*. A call of 3*s*. per share was made. Capt. Jas. Richards reported that at every point of exploration the lodes being worked upon are exceedingly promising, and that, as the lode is a fair specimen of itself, will as it progresses intersect the whole of the "Gunislake Clitters" lodes, and add materially to the future prosperity of the mine.

At Wheal Buller Mine meeting, on Thursday (Mr. H. Milford in the chair), the accounts showed a debit balance of 496*l*. 14*s*. 5*d*. A call of 15*s*. per share was made. It was explained that the lode in the shaft had fallen off from 18*l*. per fm. to being tiny throughout. Mr. Little was rather disappointed that the lode, having become perpendicular, had not improved, but he did not regard it as a feature that should cause discouragement. Mr. Ward said that the sudden turn taken by the lode in the shaft some weeks since had thrown them out in their calculations, and they could not now tell whether Stevens' lode would not take the same direction. When, however, they got out of the present run of ground both might take a different direction, and diverge to wards each other until they formed a junction—of course, he need hardly say that such was their hope. Messrs. Milford, Harris, and Ward (Messrs. Ward and Jackson) were re-elected the committee of management, with thanks for their past services.

At the Ohio Crown (Isle of Man) Mining Company meeting, Aug. 20 (Mr. William Stewart in the chair), the accounts for the six months ending June showed a credit balance of 37*l*. 13*s*. 11*d*. Capt. Bawden reported upon the various points of operation, and in concluding his report says—"I would advise that preparations be made at once to sink a fair specimen of the mine deeper, as it is to deeper levels we must look for greater improvements. I would also advise that a couple of men be put to drive the 25 south as a trial level, seeing it will prove this part of the mine at a great depth, as the hill rises rapidly in advance of it. Trials of this kind are really necessary for the proper development of the mine. The temporary washing-floors are now ready, and we have commenced to clean and make marketable the stuff we have on hand."

At the Mining Association meeting, on Tuesday (Mr. Williamson in the chair), it was explained by the Chairman that the shareholders had been convened together for the purpose of placing before them the actual position and prospects of the company. Although it would be highly impolitic to enter fully into the particular description of securities which the company had purchased, he might state that the capital placed in the directors' hands for the purpose of investment, although it did not exceed 11,000*l*., showed a profit of some 4000*l*. or 5000*l*.—that is, taking the present market price of the different securities held. As calls had been made upon some of those securities, it became a point of consideration as to the best way they could be met. From information on within the knowledge of the board, it was deemed most injudicious to realise for the moment any portion of those securities, as thereby they felt they would lose the opportunity of realising a considerable profit; therefore they unanimously agreed that the interests of shareholders would be best promoted by making a call. If the results they anticipated were borne out, shareholders might safely calculate upon a dividend at the meeting in January. All he could say was that the whole of the directors fully believed that the different properties in which the company's capital was invested were very valuable, and that before long they would be in a position to pay large dividends to the shareholders in the Mining Association. After some explanations from Mr. Danke, a resolution was passed to the effect that, under the circumstances, the directors had adopted the best course in making a call, having in view the permanent interest of the enterprise.

COAL MARKET.—The fresh arrivals this week number 85 ships. The demand for house coals has been steady, and last prices fully supported. Hartley's advanced 3*d*. Haswell Wallsend, 18*s*.; East Hartlepool Wallsend, 18*s*.; Hartlepool Wallsend, 17*s*.; Braddy's Wallsend, 16*s*. 3*d*.; Framwellgate Wallsend, 15*s*. 3*d*.; Heugh Hall Wallsend, 16*s*. 9*d*.; Elliot's Wallsend, 17*s*.; Kelloe Wallsend, 16*s*. Un-sold, 12 cargoes; 25 ships at sea.

EXPORTS OF COAL.—By the Monthly Circular of Messrs. Higginson, Liverpool, we learn that the quantity of coal exported in July was 970,572 tons, against 972,956 tons in the corresponding month of 1868, showing a decrease of 2384 tons. The particulars are—From the Northern Ports, 530,067 tons; Yorkshire, 40,046 tons; London, 4792 tons; Liverpool, 42,643 tons; Severn Ports, 283,173 tons; and Scotch Ports, 69,851 tons. The increase was—Northern Ports, 52,118 tons; London, 1367 tons. The decrease—Yorkshire, 4551 tons; Liverpool, 4049 tons; Severn Ports, 32,444 tons; Scotch Ports, 14,825 tons. Total, January to July, 5,393,010 tons; January to July, 1868, 5,797,548 tons; decrease, 404,538 tons.

THE PRUSSIAN COAL TRADE.—(From the *Dusseldorfer Zeitung*)—*Dortmund*, Aug. 21.—At the Hansa Pit, belonging to the Prussian Mining and Iron Works Company (Preussische Bergwerks-und Hütten-Aktien-Gesellschaft), the raising of coal was commenced a few months since, and the coal produced is already recognised as an excellent gas coal, especially that from the upper part of the seam, which consists of a Cannel coal, from which a gas of very high illuminating power is obtained. The hitherto worked, or 116 lachters, bed has a thickness of 32 zoll (2 feet 9 inches), and dips from 8° to 12°, and the works, which have been carried on upon it, already of a pretty extensive character, show extraordinary regularity with regard to the seam. By further deepening of the shaft they have during the past week intersected, at 10½ lachters below the first, a second seam of very fine quality, 4 feet thick, and consisting of clean coal, without foreign admixture. According to the drillings, or geological section (Flöz-Projektion), four other workable seams may be expected in the next 30 lachters sinking, one of which is very thick, and as the contents of the seams can be safely estimated from that above it, confident anticipations are entertained that the whole of the seams will be of good quality, and free from disturbances. In another pit belonging to this company—the Erin, near Castrop—very satisfactory progress has likewise been made. They have there intersected already 12 seams (they dip 40° or 45° to the north) by horizontal drivages. In that to the north the gas coal deposit has been reached, whilst to the south the bituminous coal seam is being wrought. The get from this pit is already between 4000 and 5000 scheffels per day, but this can be much increased if progress were not impeded by the incomprehensible delay of the Cologne and Minden Railway Company in the completion of the Ems Valley line (Emscherthal-Bahn), which leaves the Erin Pit without railway facilities. Under these circumstances, it must be obvious that the laying of a temporary

horse-tramway to the Castrop Station was most desirable, in order to provide for sending off the coal until the construction of the locomotive line is finished. The transport of the coal from the Castrop Station has thus become already important, especially to Duisburg Hochfeld, where an iron works of the company—the Vulkan Iron Works—is situated, and where an active and ever-increasing iron smelting business is carried on. Out of the four furnaces built at the works, two have been for some time in active operation; the third has just been set to work, and they are preparing to blow in the fourth.

THE LANCASHIRE COLLIERY EXPLOSION.—At the recent meeting, at Wigan, of the Colliery Accident Fund Committee, to consider the steps to be taken for providing for the wants of the sufferers by the recent explosion at the Queen Pit, which has left 23 widows, and 48 children all under 11 years of age, a very liberal offer was made by Messrs. R. Evans and Co., who remark that that accident renders additional means of relieving the sufferers necessary, and remind the committee that Lancashire has always liberally responded to the appeals of the Newcastle, Staffordshire, and Yorkshire districts, when they have been overtaken by calamity, and suggest that a direct appeal from the committee to those districts would be met in the same spirit. They consider, moreover, that lessors and workmen, as well as colliery owners, should contribute, and are prepared to increase their contribution to 1600*l*., on condition that the owners of other collieries whose people are receiving relief from the fund will, if they have not already done so, make their contributions proportionate to the amount of relief afforded in such cases, and also that they will endeavour to induce their lessors and workmen to contribute proportionately with theirs. With a view to meet the wishes of Messrs. Evans, it was resolved to make a further appeal to the general public, and to the colliery proprietors in Lancashire and in other districts, by circular. The balance at the bank was found to be 3352*l*. 1*s*. 7*d*. to the general fund, and there was also a balance of 1813*l*. 1*s*. 1*d*. specially subscribed in the Haydock district. It was thought advisable to amalgamate the two sums. The expenditure since the formation of the committee had been—on account of the Hindley Green accident, 556*l*. 5*s*. 4*d*.; Norley accident, 105*l*. 9*s*.; Haydock accident, 343*l*. 16*s*.; Rainford accident, 93*l*. 16*s*. 6*d*.; and from Park Lane there was no return.

THE CAPITALISTS' GUIDE.—Under the title of "How to Invest and what to Select," Mr. E. J. BARTLETT, of Great St. Helens, has issued a neat little pamphlet containing the particulars of the various mines, dividend and progressive, in which he is interested. In the introduction he discusses the relative advantages of the Cost-book and of the Joint-stock Systems, giving very decided opinions in favour of the former, which he considers peculiarly adapted to the requirements of mining enterprise. About half-a-dozen mines of each class are referred to, the more important particulars being given concerning each, such as situation of mine, metal produced, number of shares, and, in the case of profitable mines, the amount of profit realised. The amount of capital subscribed is not shown, so that the intending investor can judge from the dividend alone as to the price which should be paid for the shares. Mr. Bartlett gives the total amount that has been paid to the shareholders in dividends, and the amount of the last distribution. Some concise remarks as to the position and prospects of each mine materially enhances the value of the book.

The trustees of the Nevada Freehold Properties Trust have made the allotment of the first issue of their certificates, bearing interest at the rate of 12½ per cent. per annum.

LONDON GENERAL OMNIBUS COMPANY.—The traffic receipts for the week ending Aug. 22 was 10,975*l*. 13*s*. 6*d*.

SPAIN.

AN ENGLISH GENTLEMAN, lately returned to this country, after a lengthened residence in Spain, where he has for the last eighteen months been ENGAGED IN DEVELOPING A VALUABLE COPPER MINE, situate in one of the richest mineral districts of the country. REQUIRES MORE CAPITAL, and is DESIROUS OF MEETING WITH A GENTLEMAN who can command £1000 or £5000 for further necessary operations. Satisfactory explanations will be afforded, and all details communicated at an interview. Apply, "X," care of Mr. Burbridge, Advertising Agent, 35A, Moorgate-street, E.C.

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A GENTLEMAN, connected for many years with the Copper Trade in a large and important manufacturing town, is DESIROUS OF ACCEPTING AGENCIES for the SALE of THIS as well as OTHER METALS, &c. Apply, by letter in the first instance, to "Copper," care of Messrs. W. H. Smith and Son, Union-street, Birmingham.

COPPER WORKS.

WANTED, on the Continent, a WORKING MANAGER, practically acquainted with the EXTRACTION of COPPER from ORES by the WET PROCESS. Must possess chemical knowledge. Apply per post, stating terms, and enclosing testimonials, to Mr. T. B. SPARKS, 10, Rood Lane, E.C., London.

AN EXPERIENCED MINING ENGINEER AND COLLIERY MANAGER IS OPEN to an ENGAGEMENT. Has had great practice in opening new works; well up in machinery, ventilation, and costs. First-class references as to ability and character. Would go out to Nova Scotia, or other British Colony. Address, "X. L.," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

WANTED,—A MANAGER for a COLLIERY in the neighbourhood of BRISTOL. Apply to "Colliery," care of Mr. Bingham, Stationer, Broad-street, Bristol.

TO COLLIERY OWNERS, AND OTHERS.

AN APPOINTMENT IS WANTED AS VIEWER AND MINERAL SURVEYOR. Long experience and good references. Address, "M. B.," MINING JOURNAL Office, 26, Fleet-street, London.

PARTNERSHIP.

THE OWNER of a COLLIERY in the neighbourhood of SWANSEA, not having time to attend to its management, is DESIROUS OF MEETING WITH A GENTLEMAN, who is acquainted with the WORKING AND MANAGEMENT of COLLIERIES, to become a PARTNER, and MANAGE the same. Capital required, about £2500. Application to be made to Mr. EDWARD DANIEL, Mining Engineer, Swansea.

PARTNERSHIP, OR FOR SALE.

WANTED, in a well-established Foundry and Truck Works in South Wales, a PARTNER with £2000, competent in COMMERCIAL MATTERS, or a PURCHASER for the whole 3900 square yards of FREEHOLD, good clay for bricks, 330 ft. of frontage, on two important lines of railway, with siding laid into the foundry. Position unrivalled, surrounded with collieries, tin-plate works, and iron works. No other foundry within 8 miles. No objection to rent the works, and to grant seven or fourteen years lease. Apply to "Box," Post Office, Bristol.

TO PROMOTERS OF PUBLIC COMPANIES, &c.

THE ADVERTISER holds a VALUABLE TRACT OF MINERAL LAND, including MINES containing SEVENTY PER CENT. COPPER, and TEN PER CENT. GOLD. He wishes to MEET with RESPECTABLE PARTIES to FORM a COMPANY. The property is situate near a sea port, and a railway is just being completed in the district. For particulars, required, "South America," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

TO PARENTS AND GUARDIANS.

VACANCY for a PUPIL for a MINING AND CIVIL ENGINEER of thirty-five years' experience, and thoroughly acquainted with the MINERAL BASIN in SOUTH WALES. He will be treated as one of the family. Apply to Mr. DAVID THOMAS, M. and C.E., Cymer Villa, near Pontypridd, Glamorganshire.

TO COALMASTERS AND IRONMASTERS.

TO BE SOLD, OR LET ON ROYALTY, THE MINE OF COAL under about FIFTY ACRES of LAND adjoining a railway. For particulars, apply to Mr. G. DAVIDSON, M. wiley, Cledbury Mortimer, Salop.

TO BE SOLD, A FIRST-CLASS MANGANESE MINE, situate in NORTH WALES, together with a VALUABLE PLANT, consisting of a water-wheel, crusher, jig, long and square buddles, and other effects, all in good working order, and nearly new. For further particulars, apply to Mr. HARRIS, Mynddnodol, near Bala, North Wales.

PORTABLE STEAM ENGINE.

FOR SALE,—A SMALL STEAM ENGINE, of 5 ft. cylinder, 2 ft. stroke, equal beam, and double action, with BOILER and steam gauge, complete. Price £20. Apply to Mr. CHARLES HAWKE, Pydar street, Truro. Truro, Aug. 24, 1869.

THE EXCELSIOR TIN MINE, STOKES CLIMSLAND, CORNWALL.

A portion of this mine will shortly be offered to the public. Further information will be given through the MINING JOURNAL in a few weeks. T. VOSPER.

GREAT ROYALTON MINE.—FOR SALE, TWENTY-FIVE SHARES in the above mine, at FIVE SHILLINGS PER SHARE net cash, all calls paid to this date. Apply to T. E. W. THOMAS, 3, Great Winchester-street-buildings, E.C.

M. R. THOMAS & SONS, ASSAYERS, &c., COPPER ORE WHARVES, SWANSEA

DEVON AND CORNWALL UNITED MINES.

NEW QUAY, NEAR TAVISTOCK.

NOTICE TO CREDITORS.

ALL PERSONS having any CLAIMS or DEMANDS against the Adventurers in the above Mines are requested to SEND PARTICULARS of the same to the undersigned, on or before SATURDAY, the 4th day of September next, that the same may be examined and discharged, and all claims not then received will not be paid.

GEORGE DOWN, Secretary, Cathedral-yard, Exeter.
Dated the 9th day of August, 1869.

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SCIENCE AND ART DEPARTMENT.

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This College supplies, as far as practicable, a Complete Course of Instruction in Science applicable to the Industrial Arts, especially those which may be classed broadly under the heads of CHEMICAL MANUFACTURES, MINING, ENGINEERING, AND AGRICULTURE.

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Programmes may be obtained on application to the Secretary, Royal College of Science, Stephen's Green, Dublin.

FREDERICK J. SIDNEY, LL.D., Secretary.

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The second number of my "Mining Atlas" is now published, of which an extensive review has already appeared in the MINING JOURNAL. It contains the most detailed account of the mines of Cardiganshire ever before issued from the press. The third number is nearly ready, in which accounts of Cardiganshire mining property will be continued. It will also afford an ample description of the county of Montgomery, so far as mining information is concerned, and especially of the Van district, now so famous in the mining world. These numbers are profusely illustrated with maps of mining districts, parish maps, mine sections, and general coloured representations of great fields of mineral wealth. All these maps and sections are accompanied by letter-press descriptions. Investors will find it a great advantage to possess such a guide in their enquiries after safe and valuable media for the employment of capital. Confidential opinions of properties will be given. Fee, 2 guineas; personal inspection, 6 guineas.

LEAD ORES.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
Aug. 18	Pool Park	50	£13 10	F. Glover.
" 21	Foxdale	100	22 5 0	Panther Company.
"	Dyffide	60	12 4 0	Walker, Parker, & Co.
" 23	ditto	55	12 3 6	ditto
" 24	Trowetha	26	21 16 0	Sheldon, Bush, & Co.
"	ditto	54	7 8 6	Treffry's Trustees.
" 25	Frank Mills	100	13 16 0	ditto

BLACK TIN.

Date.	Mines.	Ts. c. q. lbs.	Price p. ton.	Amount.	Purchasers.
Aug. 18	Penhalls	10 9 125	£75 10 0	£ 790 15 2	—
" 20	Sou. Condurrow	2 4 115	70 3 4	155 14 0	Bolitho.
" 21	Penhalls	12 4 319	75 10 0	924 11 6	—
"	Wheal Uny	10 17 0	71 5 0	773 13 3	—
"	Gt. Wheal Vor	44 16 0	9 0	342 7 1	—

COPPER ORES.

COPPER ORES.

Sampled Aug. 11, and sold at Tabby's Hotel, Redruth, Aug. 26.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
Clifford Amalgamated	101	£5 8 0	South Caradon	56	£10 17 0
ditto	99	5 15 0	ditto	55	10 14 6
ditto	98	4 18 0	Great North Downs	66	3 11 6
ditto	95	5 8 0	ditto	65	4 10 0
ditto	90	5 10 0	ditto	50	5 7 0
ditto	79	5 9 0	ditto	48	4 6 6
ditto	67	2 3 0	Phoenix Mines	73	3 13 6
ditto	60	4 19 6	ditto	56	3 15 6
ditto	54	1 8 6	ditto	53	6 1 0
ditto	22	2 19 6	ditto	18	13 9 6
ditto	10	4 5 0	West Wheal Damsel	41	3 8 0
South Caradon	86	5 5 6	ditto	39	4 1 0
ditto	70	5 5 6	ditto	36	3 13 0
ditto	65	5 2 6	ditto	28	4 0 0
ditto	64	5 2 6	Craddock Moor	75	3 13 6
ditto	63	11 16 6	Pennance	23	1 18 0
ditto	67	5 14 6			

Notices to Correspondents.

* Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt: it then forms an accumulating useful work of reference.

PRACTICAL ASSAYING.—The inconvenience felt by assayers from the absence of the general use of the decimal system of weights is well known, and, as a remedy, Prof. C. F. Chandler, of the American School of Mines, has introduced the system of operating upon assay tons into the laboratory of that establishment. He uses a weight of 29.1666 for his assay ton in weighing ores, fluxes, &c., and has sub-divisions 3, 6, 10, and 20, and multiples 2 and 4. Results obtained with these weights are equal to ounces in tons of 2000 lbs. For rough work this system of assaying has long been in use in Europe; but Prof. Chandler is certainly entitled to the honour of its introduction for general purposes in the laboratory. He states that after using the system for a year he finds it leaves nothing to desire—a statement which is the more satisfactory since it appears that he has had some very rough material to deal with, in the shape of students who record their results "ten or one hundred times too high or too low," from their inability to place a decimal point in the right place.—D.: New York, Aug. 10.

AUSTRALIAN MINING.—The address of Mr. Whittington is, as appended to his letter, "Adelaide," South Australia.

BEDFORD CONSOLS MINE—Erratum.—The report upon this mine, in last week's Journal, stated to be by "J. Rendall," should read "John Kendall." See Capt. Truscott's (of Marke Valley) report in this week's Journal.

SHARE DEALING.—We never interfere in the sale or purchase of shares; neither do we recommend any particular mine for investment or speculation, or broker through whom business should be transacted. The addresses of most of the latter appear in our advertising columns.

THE MINING JOURNAL, Railway and Commercial Gazette.

LONDON, AUGUST 28, 1869.

ORGANISED ACTION REQUIRED.

It can scarcely be doubted, we think, that the next session of Parliament will be one of paramount importance to the mining interests of this country. The recent terrific explosions which have occurred will, in fact, render legislation with respect to our coal mines imperative, for it cannot be disguised that all previous enactments have failed to render the ventilation of our collieries so efficient and safe as desirable, and which, we believe, could be made to exist were more stringent provisions enforced. Other subjects of the deepest importance to our mineral interests must also of necessity receive Imperial attention. The Inspection of Collieries, the Rating of Mines, the Truck Act, Trades Unions, the Education of the Collier, &c., are all subjects which vitally affect our staple trades, and each and all of these will unquestionably be discussed during the next session. It is not our intention here to offer any remarks upon the best system to be adopted to secure the efficient ventilation of mines, or whether the appointment of more Inspectors would or would not diminish the number of accidents; neither shall we offer any remarks upon the principle which should form the basis of the rating of mines,—our object is to direct the attention of the mining community generally to the necessity and value of more combined and organised action, so as to make their influence more directly felt and appreciated in the Senate. We had hoped that our new and reformed Parliament would have afforded an adequate representation of the mineral interests, and there can be no doubt that the ranks were greatly strengthened by the additions made at the last general election. Subsequent events have, however, rendered legislation with respect to our collieries and other matters inevitable, and even those members of Parliament who are personally interested feel that the discussion of the questions affecting our mining interests cannot be longer delayed. There is also, we regret to say, a growing impression amongst the public that colliery proprietors are, to an extent, indifferent to the interests of their colliers, and hesitate to adopt those precautionary measures which prudence and science dictate for the greater safety of the mines. All, however, who are conversant with mining operations, especially those engaged in the control and supervision of our mines, know that such impression is founded upon the grossest ignorance, and is an aspersion upon the character of those whose anxiety for the safety and welfare of those employed is at least equal to any other class of the community. Still, the impression prevails, and should be removed from the mind of the public. The question to be settled is what is the best and most effectual method to carry out to prevent those disastrous events which all so deeply deplore. This once settled, the colliery proprietors and managers would not hesitate to adopt it, and it is only because there is a difference of opinion in relation to colliery ventilation and management generally that one common plan is not adopted and universally employed throughout the whole of our collieries.

Some few weeks since we suggested that a general meeting of the colliery proprietors and mining engineers of the country should be held, to consider the subject of colliery explosions, and the best means of preventing such calamities. The suggestion was evidently well received, judging from the repeated allusions made thereto in the public papers. There was, however, no one who would take the initiative, and the subject fell through. This, and many other things, prove that greater and more thorough organisation is required amongst our mineral interests generally, and without which combined action it can scarcely be expected that really good measures, which meet the approval of scientific engineers, will receive parliamentary notice and sanction. There can be no doubt that, however anxious our Government and Parliament may be to legislate upon mining questions, and to devise measures which shall prove beneficial, there are many subjects upon which they will need much enlightenment. The Right Hon. H. A. BRUCE, our present Home Secretary, is in a great measure practically acquainted with colliery operations, and conversant with the requirements of both masters and men; but it is evident that his Mines Regulation Bill of last session did not meet the cordial approval and hearty acceptance of the colliery proprietors and mining engineers of the country generally. Other members of the Government have not the advantage of Mr. BRUCE, and have no practical knowledge of collieries or mines; and, however desirous of legislating wisely and beneficially, must inevitably commit error, unless they listen to the representations of those whose interests they attempt to regulate and control. How, then, are the requirements and wishes of the proprietors and mining engineers to be made known, except by combined action and organised and systematic procedure? The prorogation of Parliament is the colliery proprietors' opportunity. The ranks of the mining interests should be at once rallied; a series of meetings should be at once called for the discussion of those questions which affect our staple trades, and upon which legislation will unquestionably take place early in the ensuing session. The wishes and requirements of the trade should be made known by means of petition and otherwise. There should be no uncertain sound with regard to the views of our chief mining engineers and most experienced colliery managers. Meetings should be organised, and the opinion arrived at endorsed by emphatic and decisive action. The interests at stake are vast, involving, it may be, the outlay of many thousands of pounds in the future working of our mines, and the regulation of our colliers. Such interests are certainly worth guarding. The legislation which is based upon mere superficial knowledge is most dangerous, frequently leading to most ruinous consequences. We say again, there are many subjects upon which our Government need enlightenment; it is in the power of our colliery proprietors and mining engineers to afford the requisite light and information, if by well-organised plans they make known their views and opinions. Let, then, the hint be taken. Three months afford the opportunity for these views and requirements being discussed, and some definite result arrived at, so that at the assembling of the new Parliament, in November, the organised action and well directed influence of our colliery proprietors and engineers may be felt and appreciated, resulting in the carrying of really beneficial measures. If, on the other hand, the present opportunity is neglected, if during the interim of Parliament our colliery proprietors and managers prove indifferent to their true interests, they can hardly expect anything but crude, hasty legislation, and the adoption of measures based upon a mere superficial ac-

quaintance with the subjects, which will prove inimical to their welfare, and it may be, of the greatest detriment to those staple trades upon which so many millions of capital are invested, and upon which the prosperity of the country so greatly depends.

THE HOME AND EXPORT COAL TRADE.

The usual annual return of the shipments of coals, cinders, culm, and patent fuel, for the home and for the export trades respectively, has just been issued. The result will, undoubtedly, be considered satisfactory by those who fear the speedy exhaustion of our coal supply, since upon comparing the shipments of 1868 with those of the preceding year there is shown to be a diminution exceeding 300,000 tons. It will, moreover, be gratifying to them to learn that the instructions contained in a circular just issued by the Lords of the Admiralty are calculated to effect a still further economy. The circular directs that, as a general rule, commanding officers in all ordinary passages of ships, as well as when cruising under steam, except for special steam tactics, are to be performed at rates of speed under five knots. No ship, unless ordered to be at a port at a given date, or unless her safety be endangered, is ever to steam when she has a fair wind that will send her four or five knots, or when she has a foul wind strong enough to prevent her carrying royals, unless going in or out of harbour. The maximum supply of coal is to be limited for ships having engines between 1200 or 1350 horse-power to 25 cwt. per hour; for ships with engines of 1000, and less than 1200 horse-power, to 22 cwt. per hour; ships with engines between 800 and 1000 horse-power, to 20 cwt. per hour; and those of between 500 and 800 horse-power, to 18 cwt. per hour; with smaller ships, a proportionate quantity of coal to be expended; and, finally, when ships have a fair wind, and are using steam, the consumption of coal should, it is considered, be less than at present. The desirability for economy in the use of coal thus being acknowledged, it is but right that the Government should set an example by commencing; it must not be forgotten, however, that four knots an hour does not always mean economy, and that where provisions, &c., have to be supplied to a large number of men it is frequently desirable to reach a destination as speedily as possible, a far greater economy being effected by that means than by saving a few pounds of coal. We live in an age of speedy locomotion; and although it is known that certain of the Spanish South Americans object to railways because a journey which now occupies eight days, and, therefore, ensures them a larger number of meals for the same price, would be performed in as many hours, it was not generally thought that Englishmen would return to the low speed of four knots an hour, and especially by order of the Government.

From the return just issued it appears that the shipments coastwise were 10,575,275 tons in 1868, against 11,299,390 tons in 1867; and the exports 10,837,804 tons in 1868, against 10,415,778 tons in the preceding year. Of patent fuel the shipments were coastwise 20,927 tons in 1868, against 40,109 tons in 1867; and exports 96,493 tons in 1868, against 150,051 tons in the preceding year. As usual, the largest shipments were made from Newcastle, Cardiff, Sunderland, Hartlepool, Liverpool, and Swansea, whilst our best customer was France, which took 1,925,661 tons of coal and culm, of the value of 872,568*l.*, and 9279 tons of patent fuel, of the value of 5413*l.*; Italy, Russia, Spain, Prussia, India, and Egypt being amongst our next best customers. The coals and patent fuel brought coastwise, by inland navigation and by railway into the Port of London in 1868 was 5,976,452 tons of coal and 14,555 tons of patent fuel, against 6,329,550 tons of coal and 29,730 tons of patent fuel in the preceding year. The return, upon the whole, is highly satisfactory, since, although France and Prussia have become to some extent independent of England for their supply of coal, our aggregate shipments have not materially diminished.

COLLIERY AND IRON WORKS BOILERS.

Less satisfactory results than could fairly have been desired has attended the working of the steam-boilers used at the iron works and collieries in the two districts to which the principle of assurance and inspection has been applied, through the medium of the association which was designed, and is conducted, by colliery proprietors and ironmasters themselves. In the southern (or Staffordshire and Worcestershire) district the Midland Steam-Boiler Inspection and Assurance Company have 1709 boilers under their care, 835 being assured and 874 inspected; in the northern (or Middlesborough) district 1040 boilers are in the hands of the company, those assured being 717, whilst the inspected are only 323; and in both districts combined there are 2749 boilers under the constant supervision of the company. Around head quarters (Staffordshire) the operations of the company seem to have been successful enough, for there has been no explosion; not so, however, in the North, inasmuch as three accidents have happened there in the past six months to boilers upon which the company undertake to keep watch. All three were colliery boilers, and had been some time at work. Their respective ages were 13, 14, and 25 years. They were plain cylindrical boilers, the two first 30 ft. by 6 ft., and the last 30 ft. by 6 ft. 6 in. No. 1 was weakened by the strain of putting new plates to the old work, which left the seams cracked from rivet to rivet, and the boiler in a less trustworthy condition than before the repair. No. 2 was being worked temporarily at more than double the usual pressure. No. 3 exploded from rupture at a crack caused at the time of recent repair, and the leaking from which had been reported as indicating danger.

These three accidents are strikingly confirmatory of the views entertained by the best authorities on the subject in the present day as to boilers made of plates arranged lengthwise, and both seams in continuous lines from end to end being far weaker than those with the plates in rings; for these accidents follow some 20 similar occurrences in relation to boilers of the same class which have gone, likewise in the northern districts, within the past five years. During the first half of this year 24 boilers are recorded as having exploded. The accidents took the lives of 37, and injured 72 persons. Twelve of the exploded boilers were being worked at collieries or mines, two at iron works, and ten were being used for various other purposes. Again, the plain cylindrical boilers were the majority, for they numbered ten, as against eight Cornish boilers and six other boilers of various descriptions, but the Cornish were the most destructive of life, inasmuch as they caused 21 deaths, whilst the plain cylinders killed 11 persons, and the miscellaneous descriptions deprived five people of life.

There is no reason to conclude that in either of the three assured cases the proprietors had not surrounded themselves with the precautions which society had a right to expect of them. The professional status of their chief employees, and their having availed themselves of the supervision of the association herein mentioned, is conclusive on this point. It is, however, conclusive that, alike in respect of the best form of boiler, and also of their construction and repair, men who have the immediate control of steam machinery have yet much to learn before that measure of freedom from accident has been arrived at which all must desire. Hardly any extent of practicable oversight will prevent an engine-driver, who is reckless of consequences, from working an engine to twice its power, if he finds that he has laid off his second boiler before all the labour has been done which it was required to perform; and for such men there should be nothing less tolerant than the punishment of the police court. But we may hope that more alarm than is often felt will be awakened at every indication of leakage, and that the diminution from the original strength of a boiler which follows upon every fresh repair will be constantly remembered.

That much has yet to be learnt by men to whom the care of our colliery and iron works boilers is sometimes handed over, has just been strikingly shown by two cases which have recently been made known. The one related to a colliery in South Wales, and the other to an iron works in East Worcestershire. In the first case, a boiler that leaked, instead of having a new plate put in by a competent boiler maker, was patched in three places, by means of nuts and bolts screwed, the operator being a jack-of-all-trades, who was taken on to work a pump, and as a boiler maker upon his own *ipso dixit* that he was qualified for the duty. Of course, the boiler—whose fabric was originally capital iron—had been burnt by bad stoking. In the second case, caulking and all kinds of bungling and unworkman-

like expedients had been resorted to by the driver of the engine who, too, believed himself competent to repair his boiler, but who was utterly unfit for either duty. One life was lost in each case, and there was considerable destruction of property. In both cases the supervision was not of that class which, by reason of its mechanical knowledge, would have made such things impossible. Said Mr. LIONEL BROUGH, during the inquest in the case at Newport—"All collieries should have a professed mechanical engineer on the works." Doubtless; and every person who is allowed to repair a boiler should be strictly accredited for competency.

Government may or may not require that all boiler makers should own trade diplomas, and they may or may not concur with Mr. SHERIDAN's appeal, to place boilers under national inspection. But steam owners, if they wish to escape from the not always pleasant consequence of enforced inspection, must show that they are not indifferent to the grave consequences which may ensue upon a looseness of discipline in such matters. When the question was discussed a few days ago at Exeter the weight of the testimony, we are glad to see, was in favour of the extended use of such supervision as can be rendered by the inspection and assurance companies, rather than the appointment of Government officers. And at the half-yearly meeting of the company which oversees so many colliery and iron works boilers, held in Wolverhampton, last Wednesday, we observe that the Chairman (Mr. GEORGE BARKER), who is an ironmaster and colliery proprietor of great experience, enforced similar views, by arguing that, whereas Government inspection would be likely to keep the science of boiler making and boiler working stationary, voluntary inspection pointed to advancement, inasmuch as it was the constant habit of the agents of the company to study and indicate improvements. The practical character of the improvements they point out is facilitated in the following amongst other recommendations, made in the report of the chief engineer (Mr. E. B. MARTEN), read in Wolverhampton on Wednesday.

"Advice is frequently asked as to the best boiler to be used for all purposes. Careful experiments have proved that nearly the same 'duty'—or weight of water evaporated per lb. of coal—can be obtained with boilers of all the ordinary forms, provided they are not forced beyond their proper rate of evaporation. Nearly as good duty has been obtained with the plain cylinder externally fired, so often condemned as wasteful, as with the two-tube Lancashire boiler, of the kind generally held in such just repute for its power of evaporation; but it is so much easier to increase the external fire of the former than the internal fires of the latter, beyond all proportion to the evaporating surface in the boiler, that many externally-fired boilers are forced to do a larger amount of work per hour than they are capable of doing without excessive waste of fuel."

With all the care which results from the assistance of such officials as are employed by the agents of these companies, there will still be explosions, but their number will be reduced in proportion to the rigidity of the discipline which coalmasters and colliery proprietors enforce, under the most competent supervision.

THE MIDLAND RAILWAY COMPANY'S COMPETITION FOR THE MINERAL TRAFFIC OF SOUTH WALES.

The persistent determination of the directors of the Midland Railway Company to obtain access to the important and rapidly increasing iron and coal districts of South Wales gives the greatest satisfaction to all interested in the development of those trades. Up to the present moment the Great Western Railway Company have enjoyed a monopoly of the South Wales district, and we have over and over again shown that that company has not developed its resources as their own interests would dictate, or as the colliery proprietors and iron masters have a right to expect at their hands. We again contend that the policy hitherto pursued by the directors of the Great Western has been and still is most suicidal, for if not crippling trade, it prevents that healthy expansion which would otherwise take place, and upon which the future dividends of the company to a considerable extent depend. We are quite ready to admit that railway companies generally have lately had many difficulties to contend with, and the depression of trade, and the consequent small dividends earned, have prevented any large outlays. The Great Western has certainly been no exception to the general rule—in fact, its financial difficulties at one time were such as to present a most serious and complex aspect, and we gladly acknowledge the undoubted ability of the present Chairman and his brother directors in having to a great extent unravelled the difficulties which beset the line, and extricated the company from its then unenviable position. But whilst freely admitting that the present board have done much good in the comparative short time they have been in office, it is equally clear to the large traders of the district through which the line traverses that the directors have turned a deaf ear to their just complaints and demands, and, consequently, trade has languished and waned, rather than having been systematically encouraged and expanded. How many years has the universal cry of the colliery proprietors, the large iron makers, and the commercial community of the South Wales district for the narrow-gauge remained unanswered, and, practically, the request ignored? How difficult has it been to induce the Great Western board to grant even the slightest concession to any of the large freighters, to make connections between their system and the collieries and iron works, and to erect proper facilities for the shipment of coal at the various ports; in a word, how listless and indifferent have they been to the requirements of a large and important trading community, longing for expansion and further development, and how prejudicial has this policy operated upon their own interests. Perhaps the whole some competition which will be evoked by the entrance of the Midland Railway into the South Wales district will bring about measures which no other means would have secured, and the adoption of plans for the benefit of trade and commerce which have been so long in vain sought for at the hands of the Great Western board.

The Midland Company in the policy which they have persistently pursued for several years past show not only that they are anxious to secure for their shareholders the benefit derivable from the carriage of coal and minerals, but the directors have proved themselves able tacticians. They have prudentially refrained from involving the shareholders in costly litigation by promoting at once a rival line to the Great Western, but they have adopted an equally successful course of procedure. With considerable tact and ability they have silently spread their network of railway towards the goal which they have kept steadily in view. An independent, if not a direct route, to the centre of the iron and coal districts was the one great object, and for the achievement of that object, short, though important, lines have been promoted and carried out, working arrangements with existing lines entered into, and every step adopted which prudence dictated and engineering skill and ability suggested. Already it may be said that the Midland has an uninterrupted communication with the port of Newport, obtained by the completion of the Ross and Monmouth and the Newport and Usk lines, both of which were promoted and carried out in the interests of the Midland. But not only so, the present parliamentary session passed a most important Bill, one which advanced the interests of the Midland most materially. We refer to the Bill which sanctions the amalgamation of the Neath and Brecon and the Swansea Vale Junction Companies, which will at once give the Midland access to the ports of Swansea and Neath. Then, again, the Midland has undertaken to work the Hereford, Hay, and Brecon Junction Railway, and these and other steps which are in contemplation will place the Midland in the position to compete, and we believe successfully too, with the Great Western and also the North-Western in the transit of that large mineral traffic which already flows between the Midland Counties and the important iron and coal districts of South Wales. That trade and commerce will be expanded, that the iron and coal trades will receive a powerful impetus, and that the Midland and manufacturing districts will receive permanent benefit by the larger importation of the "precious diamonds" into their midst, can scarcely be doubted. As we have before remarked, the colliery proprietors and the iron makers of the whole of South Wales rejoice in the prospect of very shortly having another most important means of railway communication in their midst, another outlet for their vast mineral wealth, whilst certainly the well-directed and persistent policy of the Midland Railway Company deserves, as a reward, all the increased traffic which must flow from its connection with the important mineral districts to which we now refer, and the resources of which may be said to be almost inexhaustible.

Notwithstanding the competition which will doubtless be evoked in the mineral traffic of the district by the entrance of the Midland Company, we are glad to find that the Great Western now feel

inclined to respond, to an extent at least, to the appeals made to them, and are evidently not inclined to let slip their present advantageous position without an effort at its retention. Within the past few days they have carried out a great work, and that with an alacrity and energy highly creditable to them, and which we trust must be regarded as the first step to the completion of that great boon they will now speedily confer upon the whole South Wales district—we mean the narrow-gauge. The whole distance between Gloucester and Grange Court has been, during the past week, changed from the broad to the mixed gauges, whilst that between Grange Court and Hereford has been converted into narrow-gauge, and thus a through narrow-gauge communication has been opened up. This important work was carried out in about a week, and with little detention and inconvenience to the traffic of the district. The Great Western line is unquestionably the legitimate carrier of the district, and if the board of directors will extend the narrow-gauge over the entire system, and give the traders and shippers further facilities for the transport and shipment of minerals, trade will be expanded, new outlets for the rich products of the district opened up, and the Great Western have but little fear of competition.

MINING IN NORTH WALES. [FROM OUR CORRESPONDENT.]

Having just completed a rather lengthy tour through some of the principal mining districts of North Wales, we are enabled to state that the depression which for some time past has existed in several important localities is fast giving way, and that an unmistakable improvement is now taking place. Several mines which, for various reasons, have been closed, or doing comparatively little business, have either been opened out, or operations in connection with them extended. This is, in a great measure, owing to the introduction of capital, as several companies have recently been formed in different parts of England for working mines in North Wales. One of the many causes for the closing of several concerns has been the limited capital at command; but in nearly all cases where workings can be well opened out, and the necessary machinery and appliances put down, success has invariably followed.

One of the main drawbacks to the development of the valuable minerals which abound in nearly all parts of the county of Flint is the want of railway accommodation, and which has long been seriously felt. This, to some extent, will shortly be remedied, as a new line of railway, it is expected, will be opened next month between Mold and Denbigh, joining the London and North-Western at the latter place. Other new lines are also contemplated, and which, when completed, will give considerable stimulus to the opening of new mines, and the introduction of capital into the northern part of the Principality. Just now a company is being formed for running a steam-packet between Holywell and Liverpool, and as it is probable that the Holywell Railway will very shortly be extended to Mold, the steamer will run in connection with that line. This will be the means of giving increased facilities for the exportation of the products of an important and extensive mining district.

The quietness which for a considerable time past has prevailed at the iron works and collieries in North Wales has at last given way, and a marked change for the better has taken place, so that the prospects generally are more encouraging than they have been. At the Hawarden Iron Works the Messrs. Ratcliffe are doing a good business, having some extensive orders in hand for machinery and boilers for various collieries and mines, and for the manufacture of which the firm have a high reputation not only in Flintshire, but in Lancashire and Yorkshire. At Sandycroft there is not so much doing in some of the branches at those extensive works. The Aston Hall Colliery is rather quiet, the new seam of coal reached in one of the pits a few weeks since has been proved to be a very good one, and well adapted for steam purposes. Borings are still being made in the Gladstone pit, where it is likely a new seam will be reached. At the extensive brick and tile works, which are worked in connection with the colliery, a very good business is being done, the pits, in addition to coal, yielding an immense quantity of capital fire-clay. At Leeswood some of the collieries are tolerably well off for orders, although, as a rule, no great activity prevails. The coal raised is principally the Cannel, both plain and curly, and a good deal of which goes into St. David's, where the oil is extracted from it, and sold both for illuminating and lubricating purposes.

The excitement which has existed amongst the miners in the district for several weeks past, relative to Mr. Young, the manager of the principal colliery here, has nearly died out. It will be recollected that the loss of life caused by the soldiers firing on the mob at Mold in June last was the result of an attempt to rescue some prisoners who had been committed to prison for assaulting Mr. Young. The colliery has been standing until within the last week or so, and the men have suffered a good deal in consequence. Last week Mr. Young visited the scene of his labours, and made preparations for work being resumed. The men exhibited symptoms of opposition, but at a meeting agreed to go in for a fortnight, in the hope that by that time Mr. Young would leave. It is needless to say that that gentleman, from our personal knowledge, is about the last person to yield to threats or intimidations. The work at the colliery there is very little doubt will go on as usual, as the men by their own conduct have suffered severely.

The Prestatyn Colliery Company, near Queensferry, have just got through from one pit to the other, and are making the necessary preparations for raising coal, the seam which has been reached being of a very superior quality. A pair of powerful engines has been put down, and a branch line of railway is about to be made from the colliery to the Holyhead line. The Queensferry Coal Company are still sinking one of their shafts, of which there are four, and from some of which coal is being raised. Between Hawarden and Mold a new colliery is about to be sunk, and for which the necessary engines and plant are being put down. It has been started by a company from Dudley, and is to be called the Loughston Mountain Colliery Company, the seam to be worked being that known in the district as the Main one. At the Little Mountain Colliery, near Buckley, they have a good contract in hand for locomotive coal for the Holyhead branch of the London and North-Western Railway. At the Copp Colliery trade is better than it has been, and a good deal of Cannel is being raised. The shaft at one pit here is about 160 yards deep, the main seam being within 70 yards of the top, and in some places 12 feet thick, the coal being of a good hard quality. There are several oil works near to the pits here, where the oil is extracted from the Cannel, and which is worth from 18s. to 24s. per ton. A new hauling-engine is being put down one of the pits for the purpose of conveying the coal up the incline, and so economising labour, and doing away with horse-power, a system which is now being adopted at many collieries in various parts of the kingdom. In the Leeswood district, at the Trydwen Vale Colliery, a good deal of rather superior Cannel, belonging to Mr. R. Thompson, is being raised, whilst at the pits of the North Wales Coal and Oil Company a very fair business is being done. The Cannel has just been found near to where it crops out, at a depth of 30 yards, and is of a very good quality. The oil works are stopped just now for repairs and alterations, preparatory for the winter trade. Close to Mold, the Argued Coal Company, of which Mr. Ashworth is Chairman, and the principal shareholders in which are resident in Lancashire, have been to the uppermost bed of the Cannel—the Holling seam—but have been interrupted by the water. In the same direction, at the Brouwhila Colliery, a moderate business is being done, the Cannel having been reached at a depth of 180 yards, and averages about 3 feet in thickness. The other seams are also very good, the main one being from 6 to 9 feet thick, and suitable for gas and steam purposes. The Nant Colliery is still standing, whilst the one at Mold, taken by Mr. J. Maurice, of Ruthin, has just started, after having been stopped for some time. What was formerly known as the Mold Town Colliery Company has just been reconstituted, and the Pentre Coal and Cannel Company (Limited) is busily engaged in opening out the colliery, and getting it into working condition. The Altarny Colliery, formerly belonging to Sir J. Meek and Mr. McCulloch, is still standing, having been abandoned immediately after the coal had been reached. The pits, it is said, were sunk in the wrong place. Several of the oil works in the neighbourhood of Mold have been lying idle for some time, but are about to be re-worked. Mr. Turner, of Queensferry, is about to start a new oil and chemical works at Redwood, which the Messrs. Ratcliffe are just now engaged in making the necessary tanks. The works will be of a rather extensive character, and largely increase the consumption of the Cannel, for which the district is so noted.

One of the most promising mines now being opened is that formerly known as Cat Holes, which has been taken by a company, of which Mr. T. Bantock, of Wolverhampton, is Chairman. The work is under the superintendence of Mr. Prior, of Mold, who is also interested in several other mining ventures. The depth of the shaft is 85 fms. from the surface, and the adit takes the water 63 yards from the surface. The machinery is of the most complete character, there being an engine of 300-horse power, with 85-in. cylinder, four Cornish boilers, two single-flued and two double-flued ones, each 36 ft. long. There is also a powerful 40-ton beam, and everything necessary for working the mine to the best advantage, and with a view to the economising of labour. A new washing-floor is at present being prepared, and a crushing-mill is about to be put down. The ore, which is rather rich in silver, is worth from 12s. to 15s. 6s. per ton. At the present time the levels have just been cleared up, and the men are about to drive the east and west 85-Francis's shaft. The bottom ends have a nice course of road, which will produce from 3 tons to 3½ tons of ore per fathom, whilst a small winze in the eastern part will produce about the same quantity. At the western end a course of ore is just coming in. After driving about 5 fms. more to the west from the shaft it is expected the men will come under the runs of ore proved in the levels above. The mine lies in nearly a parallel line between the Maes-y-safn and Great Rhosmor; and, seeing that no expense has been spared in putting it into the best possible working state, its success promises to be in every way complete; and, although there are at the present time only about 40 men working on tribute, yet a very much larger number will shortly be employed. Not far from the mine above alluded to is the Glan Alun, which is now being worked, but not to the extent it will be shortly. The place was standing up to a comparatively recent period, until the putting down of a large and powerful water-wheel, which is 40 ft. in diameter. Since opening out about 41 tons of ore have been sold, whilst just before the workings were stopped there was raised upwards of 25 tons in three weeks, getting as much as 6 tons to the fathom, and it is expected that the same run in the lode will be met with shortly. At present they

are driving east in the 45, and sinking below it in the Nos. 1, 2, and 3, having got about 25 yards down the No. 2, and rising east and west in the lode. From Nos. 1 and 3 a little ore is being raised. They are also driving east towards the Cat Holes Mine, getting in No. 3 from 2 to 2½ tons of ore per fathom, and from the No. 1 about 1½ ton. In the east end of the 45 there is some fine ore, in which there is a good deal of silver. At present the mine is paying its way, and, when all the alterations and improvements are carried out, so cheering are the prospects that Capt. Roberts considers that the mine will ultimately become one of the best in the county.

The Great Rhosmor Mine, situated some two or three miles from Mold, and where at one time a very good business was done, is still standing; but it is understood that the formation of a new company will shortly be completed, when operations for clearing will be commenced. It may, therefore, be expected that before long this once flourishing mine will be again at work, and be a source of no inconsiderable profit to the shareholders, who have so long been patiently waiting for "the turn of the tide." At Bryn Gwlog, which is near to the Great Rhosmor, a moderately good business continues to be done, and the prospects are in every way encouraging. The Hendre Lead Mine is still standing, but would, in all probability, have been re-opened before this, but for the death of Mr. Jobling, the Chairman. At one time it was thought the company would amalgamate with the Rhosmor, but this does not appear likely at present. At Maes-y-Safn business continues tolerably good, about 110 tons of ore being raised per month. Talargoch still maintains its position as the head of the mines in Flintshire, and does not appear likely to be dispossessed of that honour. The Great Llan-Armon Mine, which has been closed for some time, has been taken to by a new company, and will shortly be re-opened. A new engine is to be put down to the east of the shaft, and the work of clearing will be pushed forward actively. East Maes-y-Safn, which has also been standing for something like twelve months, is about to start again, with very fair prospects, it is said. There are several other mines which have been stopped, but are about to be opened out. Amongst them may be named the East Pant-Ddu, which was closed owing to the failure of Mr. Whitworth, and the Fron Hall. A new lead mine is about to be opened out by a number of practical men at Pwllheli, in Carnarvonshire, where the prospects are said to be most encouraging. It is also said that Capt. Mitchell has just purchased a mine in the same locality on his own account. The Minera Mines are doing a good business, whilst some of those in the neighbourhood of Holywell are scarcely doing so much as they have been. The best indication of the actual state of the trade, however, will be gathered from the ticketings for ore for the present month at Holywell, as follows:—

	Tons.	Price.
Talargoch	125	£13 16 6
Tithe	58½	13 7 0
Trelogan	34	12 16 0
Holywell Level	35	11 17 0
Deep Level	26	12 8 6
Bryn Gwlog	15	12 6 6
Glan Alun	10	11 11 6
Wagstaff	11	10 10 6
Parys	8½	11 12 6
Pennant	6	11 3 6
Gladstone	6	11 0 0

In taking leave of North Wales for the present, your correspondent purposes shortly to visit the mining districts of Denbighshire and other parts of the Principality, in accordance with the invitations he has received to visit several important mines now being worked and opened out.

COLLIERY ACCIDENTS, AND OFFICIAL INSPECTION.—The fact that in point of safety the English collieries, which are subjected to very limited governmental inspection, compare very favourably with those of Belgium, where a strictly military system prevails, was pointed out by Mr. J. J. Atkinson, the Government Inspector for South Durham, a few years since, and his statistics have been used as evidence that the extension of official inspection in this country is undesirable. The statistics of colliery accidents in Prussia fully confirm that opinion. The raising of 11,756,000 English tons of coal in Prussia cost the lives of 167 persons, so that to raise the quantity equal to one year's production in England would entail a loss of 1500 lives. Now, the greatest number ever lost in one year in England (that in which the Oaks and the Talke-o'-th'-Hill explosions occurred), was 1484; and the average, taking a period of five or ten years, is considerably under 1100—indeed, nearly 20 per cent. below officially-inspected Prussia. The figures are remarkable, whether as showing the comparatively small difference in the proportional casualties of coal mining in various countries, or as showing that the most stringent Government inspection does not lower the death-rate.

IMPROVEMENT IN THE MECHANICAL VENTILATION OF MINES.—This subject has of late occupied the attention of mining and mechanical engineers, as well as that of others who have been startled into activity by the many appalling accidents which of late have occurred in consequence of the explosive gases being allowed to accumulate in mines. The question is, no doubt, one of great importance, and they who shall succeed, either by mechanical or other contrivance, in keeping up a constant supply of good wholesome air in all parts of a mine will have conferred an incalculable boon upon mining science. Hitherto little provision beyond the natural condition of things, or by adding a fire in the shaft or bottom of a shaft, has been adopted; and these, no doubt, in small shafts and in mines of very limited extent have been sufficient in determining a current by effecting thermal variations. There is a degree of uncertainty about it, however, in consequence of the varying conditions of the external atmosphere, changing as it does throughout the year. Hence machines have been invented for the purpose of blowing fresh air in and of exhausting foul air out of mines, some working by means of pumps and others effecting the same object by means of centrifugal action. Mr. Lloyd, the able engineer of the Lilleshall Company, has been turning his attention to this, and he has succeeded in inventing a machine of ingenious construction, which the company has patented. The success of the plan appears to depend upon the peculiar construction and disposition of the fans, which beat the air out the shaft, depending upon the well-known elasticity of the atmosphere to supply its place. This he does by means of a centrifugal fan, driven by an engine. The one we saw was a beautifully executed model, with a fan 18 in. in diameter and 6 in. wide over the blades, which, measured by the aerometer, produced exhaustion at the rate of 1500 ft. per minute, with a water-gauge of ½ in. But the company are erecting a larger one, to be worked by a small horizontal direct action engine, which shall be described when in operation. It may be stated that the success which has hitherto attended the trials made surpasses all expectation, and the effects produced appear incredible. He first made a 2 ft. 3 in. fan, which exhausted 2500 ft. of air per minute; and another, with a 5 ft. fan, 1 ft. 10 in. broad, which exhausted 26,196 cubic feet per minute, with a water-gauge of 2½ in. Indeed, the effects were such as to be incredible to the inventor till after repeated measurements, in the course of which several aerometers were torn to pieces by the force of the current of air created.

MINING UNDER THE BASALT OF THE ROWLEY HILLS.—It has been determined to erect a powerful horizontal-engine underground to draw the minerals up the incline of 400 yards which exist in the workings, by which the newly-discovered Thick coal is brought from its natural position to the bottom of the shaft at the now-celebrated Oakham Pits of the Earl of Dudley, beneath the Rowley Hills. Every week's work in the explorations there adds to the worth of the "find," and there is no doubt that the Thin measures will be got beneath the bright Ten yard, together with the customary deposits of stone and clay.

MANUFACTURE OF IRON AND STEEL.—Mr. EDWIN FOX, of Sheffield, ironmaster, proposes certain improvements applicable to the manufacture of steel and iron worked in puddling-furnaces, the object being to enable the puddler to make malleable metal of a steeley nature, to work common pig-iron, such as could not be hitherto worked, in consequence of the phosphorus, sulphur, and other impurities contained therein, and to utilise wrought and cast iron or pig metal melted, and afterwards used in a puddling-furnace, for the purpose of puddling pig metal of a cheaper quality than previously used. The invention consists in melting and refining, in an ordinary cupola or otherwise, any or all descriptions of cast and wrought iron, scrap or pig metal, or certain quantities of each, and when melted in running it into pigs; or it may be used in the molten state, to be worked in the puddling-furnace in such proportions as may be found desirable for the production of various descriptions of iron and steel.

INDIAN RAILWAYS.—It appears that the length of new line expected to be opened this year on the railways of British India will not exceed 100 miles; next year, however, 500 miles will, it is expected, be completed. The number of locomotives sent out in 1868 was only 49—for the East Indian, 11; for the Great Indian Peninsula, 27; and for the Eastern Bengal, 11. The 49 locomotives added to the stock last year increased the whole number at work at the close of 1868 to 984. The proportion of locomotives at work varies greatly upon each system. Thus the East Indian Railway Company has

one engine to about every 3½ miles of line, while the Great Southern of India Railway Company has only one locomotive to every 1¼ miles of line. Iron sleepers have been used with excellent results upon the Madras Railway. The masonry bridges upon the Great Indian Peninsula Railway, which have given way, have been replaced by structures of wrought-iron girders supported on brick and in some instances iron foundations. It is estimated that the construction of these works, and certain general repairs upon the system, will cost altogether about 1,300,000*l.* Cast-iron sleepers are to be used on the Oude and Rohilcund system.

REPORT FROM SCOTLAND.

Aug. 25.—By the aid of a speculative movement, fostered by one or two local firms, the price of Pig-Iron was improved in this market till the end of last week; but on Monday, after good opening prices, the close of the market showed that the tide had reached its height for the present, and ½d. a ton decline was accepted. Yesterday the market was again weaker, and a further reduction of 3d. per ton was effected, closing sellers 52s. 4½d. cash, and 52s. 7d. a month, buyers 4½d. per ton less. To-day market flat, and few buyers; 52s. 4½d. cash paid, closing sellers 52s. 9d. a month, 52s. 6d. cash, buyers 1½d. less. —Makers' Iron: Coltness, 62s.; Gartsherrie, 61s.; Calder, 58s.; Summerlee, 56s. 6d.; Langloan, 55s. 6d.; No. 1, g.m.b., 52s. 6d.; No. 3, 51s. to 51s. 6d. The weekly shipments of pigs keep ahead of last year, those for the week just ended being 13,110 tons, against 9285 tons in the corresponding week of 1868. The increase in the shipments from the Scotch ports from the beginning of the year till date is within a few tons of 46,500 tons; and the decrease in the imports of Middlesbrough pigs in the same period is fully 39,500 tons, which together amount to 86,000 tons for the 8½ months of the year now run, or an average increase of about 10,000 tons a month, in addition to the increased quantity being melted by foundries and makers of manufactured iron. But still it is not to be forgotten that there is a permanent over-production kept up by makers, which is being stored by them somewhere, and which will show at the end of the year. The furnaces of the Eglinton Iron Works, Kilwinning, have been dumped out, the furnaces having struck work on account of having been refused an advance of wages. The trade of the place will be seriously affected if the strike is persisted in. We learn, on closing, that operations are to be resumed to-morrow. Merchant iron for warehouse and shipment is still in demand, and the rolling mills in Coatbridge, as well as those in this neighbourhood, are amply supplied with work, which is being placed day by day. The shipments from the port also exhibit a respectable trade in bar, railroad, sheet, and galvanized iron, and various descriptions of small castings; pipes also show largely, and cast-iron railway chairs. Quotations same as last reported. Rivet makers, who had been working the new engineering works overtime for some months, are now quieter. The works of Messrs. Hogg and Gibb, Coatbridge, have just been started with success.

Coals keep singularly, but not altogether unaccountably, inactive, and prices are in buyers' favour. In fact, till the harvest is garnered no general revival in trade is looked for, and even then, only a beginning is expected to be acquired. The quantity of all kinds of coal shipped from the Scotch ports for the week closing yesterday was 32,160 tons, against 24,110 tons in the same week of last year. The nominal quotations for shipping coal are 5s. 6d. to 6s. 6d., f.o.b.; burnt ditto, 9s. 6d. to 10s. a ton. The miners in this district on strike for an advance of 6d. a day are reported as being unlikely to get it, unless some presently unforeseen circumstance or speciality gives an impetus to the trade. We hear that some of the sale coalmasters are securing special rates of transit along certain branches of railway in this neighbourhood, which is proving acceptable; it is also further reported that at a meeting of certain coalmasters, held to-day, it was agreed to renew their appeal to the directors of those lines of railway who had granted special terms to individual ironmasters to grant them the like favourable and equitable terms.

The Clyde shipbuilders, who are becoming rather quieter as the season advances, have launched an iron paddle steamer of 1125 tons, and 230 horse-power, for the China trade, named the *Sir Nanzing*; a small screw of 420 tons, and 70 horse-power, for the Clarence and New England Steam Navigation Company; a very fine-y-lined iron sailing ship, of 900 tons, for the German house of Walden and Co.; and a handsome screw steamer, of 600 tons and 120 horse-power, for a Singapore house, named the *Bangkok*.

The Gartness Iron and Steel Works, Airdrie, with houses and ground, were exposed for public sale this afternoon at an upset price of 300*l.*, but was adjourned, not finding a purchaser.

The minerals in the estate of Redhouse, Linlithgowshire, including ironstone, coal, shale, cement, fire-clay, &c., will be put up to public sale here on an early day at the upset price of 40,000*l.*

TRADE OF THE TYNE AND WEAR.

Aug. 26.—Owing to contrary winds but few vessels have arrived in the Tyne and Wear this week, and consequently the same amount of business has not been done as in the week previous, though the general tone of the Coal Trade is better, and the works fairly well employed. The Coke Trade is also pretty steady, and a good business is being done, but makers complain of poor prices, and the demand is not sufficient to warrant any increase of prices. The same remark also applies to the price of coals, but should the demand continue to improve, as it has done lately, a rise must be established shortly. The demand for ships is good at present for abroad, coals and iron being sent outwards, with a good prospect for homeward grain freights, &c. The demand for Cronstadt continues, the rates being 12*l.* per keel, and for Alexandria 21*l.* per keel, Venice 21*l.*, &c. The Iron and Engine Trades continue to improve, and some of the engine shops are unable to complete their work in time to satisfy their customers, and are, therefore, glad to give part of their work out to other firms who are not quite so full of orders. The production of coal and iron is certainly enormous, and some time must elapse before the demand can exceed the supply, so as to cause a general rise of prices, but this appears likely to take place during the autumn, so far as present appearances go. At Hartlepool a considerable number of ships have sailed with coal, as usual, and the trade in South Durham continues to improve, but, as already remarked, makers complain of poor prices, and one reason for this state of things is the dull state of the iron trade in Cumberland. The ironmasters in Cumberland are good customers for the best qualities of coke, and the dullness of the iron trade there, including the short make of Bessemer steel, &c., has reduced the prices of best coke.

Some very serious breaches of the Mines Regulation Act have occurred here lately. At the Gateshead County Court, on Tuesday, a man named William Fellis was fined 5*l.*, and costs for taking a box of lucifer matches down the Gallowhill pit, belonging to Messrs. Potter and Co., in which he was employed. The defendant pleaded that he had simply forgotten to take the matches out of his pocket when he descended the pit. The view of the colliery stated that the pit was a little fiery, but the miners were allowed to smoke in such parts as were worked with candles. The prohibition which defendant had not attended to was in force where safety-lamps only were allowed.

A man was also brought up lately charged with a far more serious offence at the Haswell Colliery, he having fired a shot without leave, and without the knowledge of the deputy. This is a large and fiery colliery, and a great number of men are employed in it, and the offence alluded to was a very serious one, and attended with much danger. It is, happily, an offence very seldom heard of in this district. It being difficult for a man who has the wish to commit such a breach of the rules to evade the notice of a numerous staff of deputies, &c.

William Elliott was, unfortunately, choked by inhaling carbonic acid gas in sinking a shaft at Eledon, in North Northumberland, a few days ago. It appears that the young man, who was one of the contractors for sinking the shaft, had gone to it alone, and descended to the bottom by sliding down the rope, when he fell. Shortly afterwards, when his fellow-contrators arrived, they saw him lying at the bottom of the shaft, and one of them descended, but was unable to render any assistance, as he, too, was nearly overpowered, and had to be drawn up immediately. Strange to say, a doctor was next sent for, and he (and his name should be mentioned), Dr. Rogers, also descended in order to make a vain attempt to relieve or rescue the young man, and another miner also failed, but ultimately a strong old miner succeeded in bringing the poor young man up, life being quite extinct. It does not appear that any suspicion had entered the minds of the men, not even the doctor, that carbonic acid was the cause of the man's prostration, or, at any rate, that any attempt was made to remove it, which might easily have been done by throwing down water, &c. The miners in those remote districts must be very ignorant.

Several parties were summoned last week at the Gateshead Police Court for the Smoke Nuisance, and, being convicted, were fined 40*l.* each and costs. Mr. Hopper Miller was one of the parties. Messrs. Hawks and Cravshaw, the owners of Shipcote Colliery and others. It is thought by many that the numerous cures for smoke advertised, where the stoking still has to be done by hand-stoking, cannot succeed without the hearty co-operation of the fireman, that he must, indeed, be very careful to ensure success, and it appears notorious that comparatively few men will take the trouble to do this. It is, therefore, a question well worth discussing whether mechanical firing of boilers is not an

imperative necessity where the Act is enforced; and although the first cost of the machinery necessary for mechanical firing is very considerable, yet the saving of fuel and wages will, no doubt, amply repay this. It is calculated that where three firemen are employed, the saving of fuel and wages will amount to 200l. per annum; and supposing that there are four or five boilers, the first cost of the apparatus will amount to (say) 400l. and 500l. respectively, and allowing for repairs, the use of Juckes's apparatus will, there is little doubt, prove profitable. Some of these furnaces have been at work in Abbot's Factory, in Gateshead, some time, and they have given much satisfaction. On the other hand, numerous other schemes have been tried, where hand-firing is still resorted to, and although many of these schemes have succeeded well on a trial, particularly, so far as we know in this locality, Dunn's hollow bars, yet ultimately they are all nearly failures. One point is worth noticing, and that is, that Juckes's apparatus appears to be the only one which saves fuel, the reason for this, probably, being that in most schemes too much air is admitted, and in proportion to the prevention of smoke, the boiler is cooled.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Aug. 26.—There is nothing new to report as to the demand for iron. The excessive heat of the last few days will operate to diminish the production, as standing in front of a puddling-furnace must now be almost impossible. The price of pig-iron is firmer, consequent on the hardening of the market on the Tees, from which South Staffordshire derives considerable supplies. There is some talk of re-starting the Dudley Port blast-furnaces. The nailers' strike is still unsettled, and a speaker at a recent meeting said that 30,000 persons were, in consequence, unemployed. The men appear sanguine that the reduction of stocks will soon induce the masters to yield the advance sought.

An agitation for an advance of the wages of ironworkers appears to be commencing in South Staffordshire. On Saturday night a meeting of delegates, representing puddlers, shinglers, rollers, and millmen, was held at Great Bridge, near Tipton. A memorial, prepared by a committee, to the proprietors of the malleable iron works in the district was submitted to the meeting and approved, and a resolution was unanimously adopted for its presentation to the employers. It recites at some length the changes which have been made in wages since the year 1863, and speaks with natural satisfaction of the short period in 1864 when wages rose rapidly with the price of iron from 7s. 6d. to 10s. 6d. per ton for puddling, and for other work in equal proportion. But that was a short-lived period of prosperity; in truth, it was mainly one of inflated expectation, and the series of rapid advances in the price of iron and the rate of wages had a disastrous effect on the trade. The memorial refers, in a tone which can excite no surprise, to the successive reductions which followed, until in the beginning of last year wages were brought back to the level of the end of 1863. Two principal reasons are urged for a present advance. The first is that trade is improved; and no doubt there is more doing, but prices have not advanced, and very few ironmasters are getting even the low rates which the trade has fixed for manufactured iron. The other argument is that wages have been raised in the North of England. No doubt this is owing to the demand for rails, which exceptionally affects the district; still, the argument has force, and one would expect that the difference in wages would lead to many leaving Staffordshire for the Cleveland district. It is also urged that men are induced to go abroad and carry the trade elsewhere, owing to the low wages paid in England, and also that fewer youths are learning the trade, and that underhands are scarce. Of course, should this go on it would lead to an advance of wages in time. The memorial asks the masters, if they are not at once prepared to concede the advance, to submit the question to arbitration, as was done in the Cleveland district.

Mr. Frederick Smith, principal agent of the Earl of Dudley, has resolved to initiate a much-needed reform by establishing the imperial weight of 2240 lbs. to the ton, instead of the old long weight. No one else in the district would be so likely to succeed in over-riding an old but objectionable practice. Mr. Smith reduces prices in proportion, charging best coal 11s. 6d., common 7s. 8d., lumps 6s. 8d., slack 3s., brooch (mixed) 8s. 6d., loaded into boats, wagons, or carts, west of Dudley. It is to be hoped that the gauging of boats will be put on a more uniform scale, as the irregularity in this respect has long been a scandal to the district.

The Trades Union Congress, held at Birmingham this week, has been carried on in a spirit which has, on the whole, done credit to those concerned. The great fault in the papers has been the excess to which the writers have indulged in prefatory historical sketches of the subject they have dealt with. Perhaps the one prominent blot in the discussions was the assertion by some Manchester representatives that Mr. Kettle, who went to that town to arbitrate between the joiners and their employers, called on and dined with the masters' secretary, and, as was inferred, was influenced by him against the men. When several successful attempts at arbitration had been made, people who looked on the plan with doubt, said, "Oh! it's very well, so long as the men get what they want, in whole or in part; but wait until the decision is against them." The course taken by the Manchester joiners seemed to justify this view, but before the receipt of Mr. Kettle's letter, denying the statements made, several members of the Congress stood up for him, and said that he was merely condemned because his decision was against those who imputed wrong influences to him. The imputation was really silly, for who would imagine that a man in Mr. Kettle's position could be influenced by a dinner? If persons who have attained such a standing are to be suspected in this way, it will be impossible for any man to act in behalf of others. Perhaps the most unsatisfactory papers were those on the limitation of the number of apprentices.

Mr. Lloyd, engineer of the Lilleshall Company, in Shropshire, has invented a new application of the fan for ventilating mines, which the company have patented—the particulars of this invention are given in another column of this day's Journal.

The visit of the North of England Mining Engineers to South Staffordshire has been deferred for the present. It is intimated as probable that the Iron and Steel Institute will shortly hold a meeting in Wolverhampton.

A paragraph in the *Birmingham Daily Post* speaks of the saving in the consumption of fuel effected by enclosing and taking off the products of combustion from the blast-furnaces, as illustrated by the fact that the Park Field Company, near Wolverhampton, are now offering for sale from 250 to 300 tons of fresh drawn engine slack per week, which they formerly consumed for raising the blast for their furnaces. The Birmingham Small Arms Company are again able to pay a dividend at the rate of 10 per cent. per annum, in spite of the late depression in the trade.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

August 26.—There is rather more business doing at the iron works and collieries in Derbyshire, and trade generally appears more promising than for some time past. So far as regards pig-iron, most of the furnaces continue in blast from Eckington to Stanton. At Staveley the whole of the furnaces are now in full operation, but there is no material change in the demand for manufactured iron. There is a little more doing in House Coal for the London market, although the excessive heat of the last few days has not been calculated to lessen the stocks held by merchants. Steam Coal is in very fair request, and, whilst a moderate tonnage is being sent to Hull and Grimsby, there is more going to Birmingham and the Midland Counties. As the new line from Chesterfield to Sheffield will now be available for the several collieries opened out on its route, a much larger tonnage will be sent on the main line, so that the Midland Railway will absorb the larger part of mineral traffic to London and the South. The new station at Chesterfield, it is understood, will be pushed forward with the greatest activity, so that increased facilities for the trade in coal will be afforded to those owners whose collieries lie to the north. The efforts made to obtain a low rate into Sheffield from Dronfield and the neighbourhood, as might have been expected, has not been successful, seeing that the company have some good customers in South Yorkshire, whose business is with Sheffield. To bring the two districts into competition was a policy which the Midland Company was too wise to adopt.

In South Yorkshire there has not been so much doing during the week, owing to the holidays, consequent on what are localised termed the feasts, which prevail just now in many of our coal and iron districts. The demand for coal has rather increased lately, but prices have not in any way improved. For Hull and Grimsby a moderate business is being done, as there is also with Goole for the eastern ports. As yet there has been no intimation as to the state of the arbitration

going on between the Midland and Great Northern Railway Companies as to the carriage rate of coal to London and the South. It appears certain, however, that the rate by the Great Northern will have to be considerably reduced if that company intends to maintain the position it has hitherto held as the principal carrier of coal to the metropolis.

THE NORTH OF ENGLAND IRON AND COAL TRADES.

Middlesborough, Aug. 25.—The intense heat this week is interfering with the progress of the mill and forge work in the district. It is so oppressively hot in the works that in many instances the men are compelled to discontinue their labour. This, and the general holiday observed last week, on account of Stockton Races, and the irregularity with which the men in many cases have resumed their work this week, are rather unfortunate circumstances at this busy season of the year. Most manufacturers are making good headway with the contracts they have for this navigation, and shipments are being made as fast as possible, to ensure delivery this year. A good deal of winter work has been secured, and some makers are reported with orders on their books that will give them full employment for their mills for several months to come. Enquiries for rails are still numerous, and there is now no reason to fear but the makers of this class of iron generally have before them a fair amount of business for the coming winter. There is an encouraging prospect also of a good rail trade next year. For plates there is no particular variation to record. The demand is apparently even just now, and the mills of this neighbourhood are all making good time. Bars are in rather better request, but prices are unsatisfactory to sellers.

There is continued activity in the pig-iron department. The demand from the Continent is heavy, and shipments thitherward are well kept up. The attendance on 'Change here on Tuesday was very good, and a fair amount of business is reported to have been transacted. Contracts for delivery during the present year, and during the next also, are still being made, and current prices more firmly maintained. These are 47s., No. 1; 43s. 6d., No. 3; 42s. 6d., No. 4; 42s., mottled and white. The railway store shows a further reduction this week of 400 tons, being now 46,495 tons, or 4880 tons less than it was four weeks ago.

The exports of iron from this port for the week ending Aug. 21 are—

	Pig.	Merchant.
Belgium	960	—
Holland	473	770
France	455	—
Sweden	66	—
Brussels	62	10
Russia	—	800
Prussia	305	—
United States	—	601
Argentine State	—	220
Total	2301	2401
COASTWISE.		
Newcastle	1375	—
Scotland	615	251
Wales	887	—
Other places	275	1112
Total	3152	1363

In the Coal Trade there is little worthy of special note. The slight improvement which manifested itself two or three weeks ago is still observable. Pits drawing good coking coals are making steady time, shipments generally are somewhat better, and gas coals are in fair request. The demand for coke is reported good.

REPORT FROM MONMOUTH AND SOUTH WALES.

Aug. 26.—At present there is every prospect of the rail branch of the trade continuing for some months to come the backbone of the iron-making branch of industry in this district, and the demand just now is as good as it has been at any period of the present year. Owing to the near approach of the close of the Baltic shipping season, considerable activity is being evinced at the local ports in the shipment of rails to the Muscovite empire, and as sailing vessels will not be laden for that quarter above another fortnight, several are now wanted, and for which higher shipping rates are being offered. Rails, however, will continue to be shipped for Russia by steamers up to the middle of October, makers being desirous of forwarding as large a quantity as possible to that country before the winter quarter sets in. The approaching close of the shipping season for the Baltic causes increased anxiety to be evinced on the part of buyers of rails to place contracts for prompt delivery; and although higher rates have just been offered for a small parcel of rails, to be delivered before the close of the summer season, it has not yet been accepted, owing, probably, to makers being actively engaged in contracts for summer delivery. The large orders secured from Russia and America in the early part of the year continue to afford full employment to the hands engaged at the principal iron-making establishments; and although the hot weather somewhat interferes with operations, the men are generally working five turns a week, and when the season is a little further advanced, full time will be made. Although the produce is something considerable, new orders are coming freely to hand, and the enquiries being made lead to the belief that a good trade will be done throughout the winter months. In last week's report it was stated that there was a prospect of trade with India improving, and this, to some extent, is confirmed, from the fact of one of the leading establishments in the district having just secured a tolerably large order for rails for that part of the British Empire. In the home trade there is a slight improvement noticeable, the railway companies manifesting a stronger inclination to enter into transactions. For the miscellaneous descriptions orders are scarce, and prices are barely remunerative. Pigs of the best brands are more enquired for, and prices have an upward tendency. Tin-plate proprietors report a better demand for coke qualities, chiefly for exportation to the United States' markets.

It cannot be said that the prospects of the Steam Coal Trade are quite so gloomy as they were three months ago, and the slight improvement referred to in last week's report as having set in is so far maintained. Hopes are now entertained by shippers and proprietors that the worst period has been passed, and that the trade will, although it may be but slowly, attain a position similar to that which it occupied some few months ago. From the mail packet stations enquiries are steadily increasing, and to several of the principal foreign markets larger supplies are being sent. There is a fair prospect of business with France improving, but to the Mediterranean ports the quantity being sent is below the average. Prices cannot be said to have improved to any extent, although there are indications of an advance shortly taking place. Generally speaking, the House Coal Trade is dull, and at several of the collieries the men are not employed more than half time.

Messrs. D. and R. Bevan Brothers, of Hirwain, have struck a vein of coal in their pit Forchneol, Cwm Amman, Aberdare, and it is said that the firm intend carrying on some large colliery works, and manufacturing bricks from the Graig vein of fire-clay.

The first arrival of iron from the Blaenau Works was placed in the wharf at Newport on Wednesday, amid the hearty rejoicings of the workmen employed. The new company, it is said, are tolerably well placed for orders, and before long it is expected some hundreds of hands will be employed.

Mr. Thomas Thomas, late overman for Mr. W. Davies, Oakwood Colliery, was presented with an excellent gold lever watch and chain at the Golden Lion, Mr. T. Jones, the present manager, in the chair, and Mr. William Rees the vice. Several of the workmen spoke in eulogistic terms of the respected overman, and all united in stating that he had done his duty between master and man. The following was inscribed on the watch:—"Presented to Mr. Thomas by the workmen of the Oakwood Colliery, Maesteg, and others, as a tribute of respect, Aug. 18, 1869."

The Taff Vale Railway Company half-yearly meeting was held yesterday afternoon at the New Hotel, College Green, Bristol. The Chairman, in moving the adoption of the report, congratulated the company upon the success of the past half-year's working. Let it be observed how steadily they had gone on improving. In the half-year ending June, 1868, it was 157,072l.; in the following December, 155,642l.; and in June, 1869, it was 168,727l.; and he assured them in all sincerity he saw no reason why the traffic should not continue to increase, and why under ordinary circumstances the present dividend should not be maintained. With reference to the Penarth, he need not call their attention to the fact that last half-year the deficiency was some 12,000l.; but with the diminution of expenses and the increase of traffic they were 5000l. better with reference to the undertaking, and he trusted in a short time the venture would redeem itself. Mr. Head threw out two important suggestions: the first was to consolidate the lines leased by the company, and the second the adoption of steel rails. The Chairman informed the meeting that the first subject should receive the serious consideration of the directors, and the second, he said, had been partly carried out with marked success, steel rails having answered

their expectations so far as wear and tear was concerned. The report was adopted, and a dividend at the rate of 9½ per cent. was declared.

The Llantrissant and Taff Vale Junction Railway Company half-yearly meeting followed the foregoing, and this being resolved into an extraordinary one, it was agreed that the directors be empowered to raise 25,000l. of the Taff Vale and Llantrissant Companies, needed in consequence of a scheme to open up 8000 or 10,000 acres of coal fields, and representing a large amount of revenue. The meeting of the Dare Valley Railway Company, and that of the Taff Vale Wagon Company were purely formal.

The directors of the Monmouthshire Railway and Canal Company after providing for necessary expenditure, and also transferring 6000l. from revenue to the relaying account, intend declaring a dividend at the rate of 4 per cent. per annum, being the same as for the two previous half-years.

The arrivals at Swansea include—the Juliette, from Antwerp, with 207 tons of fire-clay, for Vivian and Sons; Prince Rupert, from Antwerp, with 260 tons of iron ore, for J. D. Jones; Fidele, from Gothenburg, with a cargo of pit wood, for A. Sterry; Angus St. Malaine, from Bilbao, with 150 tons of iron ore, in bulk, for T. Wood and Co.; Clarisse, from Bilbao, with 120 tons of iron ore, for T. Wood and Co.

FOREIGN MINES.

ALAMILLOS.—Aug. 18: The 4th level, west of San Rafael shaft, produces 1½ ton of ore per fathom; the lode has a good appearance, and is opening fine tribute ground. The lode in the 4th level, east of La Magdalena shaft, is very irregular, yielding ½ ton per fathom. In the 5th level, east of La Magdalena shaft, the lode is small, and the ground hard. The lode in the 5th level, west of above shaft, is large, yielding 1 ton of ore per fathom. In the 6th level, east of Taylor's engine-shaft, the lode is large, and of a promising appearance. The lode in the 6th level, west of Taylor's, is composed of carbonate of lime, with spots of lead. In the 5th level, west of Taylor's, the lode is unproductive. The ground in the 4th level, west of San Rafael shaft, is hard to drive through; the lode is small and poor. The lode in the 3d level, west of San Yago, is very small at present. The 2d level, east of Cox's shaft, produces 1½ ton of ore per fathom; the lode has increased in value, and presents a good appearance. In the 3d level, east of Crosby's cross-cut, the lode is disarranged by cross-heads or joints. The 3d level, west of Crosby's cross-cut, yields ½ ton of ore per fathom; the lode is very compact, composed of granite, and is hard for driving. Shafts and Winzes: San Rafael shaft has reached the required depth for a 5th level, and the men are put to drive a cross-cut north. In La Magdalena shaft, sinking below the 5th level, little progress is being made, in consequence of an increase of water. San Victor shaft, below the 1st level, yields ½ ton of ore per fathom; the lode is very regular, but not so productive as when last reported on. The lode in Mateo's winze, below the 5th level, yields occasionally stones of ore. In Sanchez' winze, below the 3d level, the lode is small and poor.

FORTUNA.—Aug. 18: Canada Incocha: The lode in the 110 fathom level, driving west of O'Shea's shaft, has a kindly appearance, and produces ½ ton of ore per fathom. The lode in the 100, west of Henty's shaft, also yields ½ ton per fathom, and we expect an improvement very shortly. The 90, west of Judd's shaft, is worth 1 ton of ore per fathom. The driving of this level is resumed, and the lode is of a very kindly appearance. We have also resumed the driving of the 80, west of Judd's, which yields ½ ton per fathom. In the 90, east of Addis's, the lode is large, and spotted with lead, yielding ½ ton per fathom. Very good progress was made in the 80, south of Henty's, last month, the men having met with a part of the cross-course. The 60, east of San Pedro shaft, is worth 1½ ton of ore per fathom; the lode, although not quite so productive as it was, is still opening good tribute ground. In the 80 fathom level, west of Lowndes' shaft, the lode is large and strong, but of very little value. The 80, east of Lowndes' shaft, has declined in value in the past month, and now yields ½ ton of ore per fathom. The 70, east of Carlos' shaft, produces 1 ton of ore per fathom; the lode is small and compact, and is opening moderately productive ground. Shafts and Winzes: O'Shea's engine-shaft, sinking below the 110, is being sunk in strong crystallised granite, and being off the lode, is hard to sink. Ale's winze, below the 55, yields ½ ton of ore per fathom; the lode is small, and the ground hard. Carlos' winze, below the 100, is being sunk in a strong, open, and promising lode, worth 1½ ton of ore per fathom. Los Salidos Mine: The 100, east of Buenos Amigos shaft, is worth 1 ton of ore per fathom; this level will be holed to the end of driving west from Carlos' shaft, in a few days. The lode in the 100, west of above shaft, has become unproductive. The 80, west of same shaft, yields 1 ton per fathom; this ended open a splendid course of ore last month, but the lode is now very small. The 75, west of San Carlos' shaft, is in a very powerful cross-course. The 100, east of San Gabriel shaft, contains stones of ore, but not enough to attach a value to. In the 90, east of Cox's shaft, the lode is again improving, and yields now ½ ton of ore per fathom. The 75, east of San Pablo shaft, is worth 1½ ton of ore per fathom; the lode is compact, and the ground hard for driving. Shafts and Winzes: In San Miguel shaft, sinking below the 65, the ground is very hard. Cox's shaft, below the 90, is near a strong cross-course, which has disarranged the lode. Morris' engine-shaft, below the 100, is worth ½ ton of ore per fathom; the lode is small, and the men are making great progress in sinking. San Pablo shaft, which has reached the required depth for the 90 fathom level, is worth 1½ ton of ore per fathom. The slopes yielded very well in the past month, and the tribute department is looking moderately well at present, enabling us to estimate the raisings for August at 350 tons. The machinery is in very good working order, and the ordinary surface operations are going on very regularly.

LINARES.—Aug. 18: West of Engine-Shaft: The lode in the 85, driving west of Warren's engine-shaft, is improving, and now yields 1½ ton of ore per fathom. In the 45, east of San Francisco shaft, the lode, which is containing in value, produces ½ ton of ore per fathom. The 31, east of this shaft, is worth 1 ton per fathom; the lode consists of quartz and lead ore. The lode in the 25, east of Francisco shaft, is disarranged and poor. Shafts and Winzes: In San Francisco shaft, sinking below the 45, satisfactory progress is being made. No. 167 winze is worth 2 tons of ore per fathom; this winze is down the required depth for the 55, and the men are put to drive east and west from the bottom of the same. The lode in No. 168 winze, below the 75, is large and strong, yielding 3 tons of ore per fathom. Los Quintones Mine: The 45, east of Taylor's engine-shaft, is worth 3 tons of ore per fathom; this end is being driven through a rich shoot of ore. The lode in the 45, west of Taylor's, is very strong, but quite unproductive. In the 32, east of the above shaft, the lode is large and strong, and until the last few days has opened tribute ground. The lode in the 32, west of Cox's shaft, is cut off by a very strong cross-course. The 32, west of San Carlos shaft, is worth 1 ton per fathom; the lode is very wide and open, and easy for driving through. The 32, east of San Carlos shaft, also produces 1 ton per fathom; this end the lode is more compact, and not so easy for opening. Shafts and Winzes: Agustin's shaft, sinking below the 32, yields 1½ ton of ore per fathom. This new winze is situated west of Taylor's shaft, and is begun in a good lode.

CAPE COPPER.—John Williams, July 8: The shaftmen in the early part of the past month were engaged in putting in footway from the 30 to the 40, also cutting ground for hitches, and fixing a penthouse in back of the 40 fm. level. They have also during the past month extended the 40 fm. level 1 fm. west from the engine-shaft, and stopped 1 cubic fathom in cutting tip-plate and sinking the engine-shaft below the 40; re-set, July 1, the engine-shaft to sink and a pit to cut below the 40, to three men and six labourers, at 20l. per cubic fathom, for 4 fms., or the month. The 40, west from No. 4 winze, has been extended 1 fm. 6 in. during the past month in very hard ground, and we have about 6 or 8 ft. more to communicate with the end being driven west from the engine-shaft, which we hope to have done in about a week from this date. We shall then commence driving the 40 west from No. 4 winze in a good course of copper ore, by two men and two labourers, at 12l. per fathom for 3 fms., or the month. The 30 south, on the flooken course, has been extended 5 fms. 3 ft. 6 in. through moderately easy ground; the first 8 or 9 ft. produced from 4 to 5 tons of copper ore; the last 4 fms. driven were unproductive; re-set, July 1, to two men and two labourers, at 6l. 10s. per fathom for 6 fms., or the month. The 20 fm. level east has been extended during the past month on Job's branch 2½ fms. 5 ft. 9 in., through ground that has yielded about 3 tons of copper ore per fathom. The end at present is not looking so well, but has a very kindly appearance; re-set, July 1, to two men and two labourers, at 12l. per fathom for 4 fms., or the month. We have put a pair of men to rise in back of the 20, on Job's branch, about 6 fms. behind the end, in a good branch of copper ore, that will yield from 4 to 5 tons per fathom, at 12l. per fathom, for 2 fms., or the month. The 20 fm. level east, on the south branch of the flooken mineral course, has been extended east from the flooken 1 fm. 2 ft. 7 in. during the past month through ground, producing a little copper ore of low percentage, but has a very promising appearance; re-set, July 1, to one man and one labourer, at 15l. 10s. per fathom for 2 fms., or the month. The slopes in bottom of the 20 yield about 8 tons per fathom. The end and slope in the 30 south, west from incline, are not looking so well, but will yield about 4 or 5 tons per fathom. The end and slope in the 20, north-east from the incline, will yield about 7 or 8 tons of copper ore per fathom. June extract, 497 tons, of 21 cwt., or 521 tons 1904 lbs., of 2240 lbs.; average per cent. 32½.

[For remainder of Foreign Mines, see to-day's Supplement.]

THE LATE SIR ROBERT PEEL, BART.—The practical wisdom which eminently distinguished the late Sir Robert Peel led him, amongst other courses of action, to make a stand against the insatiable demands of the large class of military and naval officials who are perpetually seeking to promote their own prospects of pay and promotion by raising cries of "inefficient defence" and "danger of invasion." In rebuking, in his place in Parliament, the persevering, and too successful, efforts of these persons to maintain large war establishments in times of peace, under the plea of being prepared for invasion, Sir Robert remarked that "if the House listened to the opinions of military men, who were naturally prejudiced upon this subject, they would involve the country in an outlay that no revenue could bear." This prediction has, subsequently, been far too closely fulfilled, as every British tax-payer knows to his cost. On another occasion, the same illustrious statesman exclaimed in the House of Commons—"I do hope that one great and most beneficial effect of the advance of civilisation, the diffusion of knowledge, and the extension of commerce, will be the reducing within their proper dimensions the fame, the merit, and the reward of military achievements; and that juster notions of the moral dignity of, and of the moral obligation due to, those who apply themselves to preserve peace, and avoid the *clat* of war, will be the consequence."

THE NEW VADE MECUM (invented and manufactured by Charles H. Vincent, optician, of 23, Windsor-street, Liverpool) consists of a telescope well adapted for tourists, &c., to which is added an excellent microscope of great power and first-class definition, quite equal to others sold at ten times the price. Wonderful as it may seem, the price of this ingenious combination is only 3s. 6d., and Mr. Vincent sends it (carriage free) anywhere, with printed directions, upon receipt of Post Office order, or stamps, to the amount of 3s. 10d.

HOLLOWAY'S OINTMENT AND PILLS.—ULCERS, WOUNDS, SPRAINS.—Bad legs, old wounds, whether recent or chronic, yield with surprising celerity to the cooling, healing, and curative properties of this invaluable ointment. It may be relied upon in all such cases as have baffled the skill of our best hospital surgeons. No matter the length of time the malady has endured, this ointment, assisted by a course of Holloway's Pills, will quietly but certainly reach the core of the complaint, and thoroughly eradicate it without additional impediments to pleasure or business. These remedies will overcome the worst forms of disease, and the foulest state of the blood. They never fail in extirpating noxious humours, the first step towards renewing soundness.

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WAGONS PROMPTLY REPAIRED.

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Bridge Rails and Tram Plates for Colliers, Flat Bottom and Other Rails.

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FOUNDRY, BELFAST, after twenty years of experience, have brought
their IMPROVED TURBINE to great perfection.
It is applicable to all practicable heights of fall, giving much greater power
from the water than any other kind of water-wheel.
On low falls it has the great advantage of not being impeded by floods or
backwater.

It is particularly well adapted for situations where the quantity of water is
variable, and where all other wheels fail.
Its motion is extremely regular, and, when desired, a governor can be applied
effectively.
This wheel is at work in a great many places, to which reference will be given.

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GREEN'S IMPROVED PATENT FUEL ECONOMISER,
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Heats the feed water with the wasted heat; saves 20 to 25 per cent. of the fuel
is now at work to more than a million horse power; can be applied
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THESE SIGNALS supply a want long felt in giving INSTANT
COMMUNICATION IN MINES AT SEVERAL PLACES AT THE SAME
TIME without the aid of electricity, but by a single rod or chain; so that a
degree of safety is ensured hitherto unknown.

The price is also very low, and the mechanism so simple that any ordinary
mechanic could put it in order if out of adjustment.
The same patent, as applied to ships, has received the approval of the Chief
Engineer, Chatham Dockyard (vide Times, Aug. 13, 1868).

SOLE AGENT FOR MINERS:

MR. GEORGE B. JERRAM, ENGINEER, WASHINGTON BUILDINGS,
BRUNSWICK STREET, LIVERPOOL.

N.B.—Mr. JERRAM is now visiting the different mines with working models.

WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,

MINING AGENTS, STOCK AND SHARE DEALERS, &c.
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

MESSRS. WATSON BROTHERS return their most sincere
thanks for the great patronage bestowed and confidence reposed in their
firm for 25 years, and to assure their friends and clients it will be their earnest
endeavour to merit a continuance of both.

Messrs. WATSON BROTHERS have made arrangements for continuing their
weekly Circular, which has had a large circulation for many years, to the
columns of the Mining Journal, their special reports and remarks upon mines
and mining, and state of the share market, will in future appear in this column.

In the year 1843, when Cornish mining was almost unknown to the general
public, attention was first called to its advantages, when properly conducted, in
the "Compendium of British Mining," commenced in 1837, and published in 1843,
by Mr. J. Y. WATSON, F.G.S., author of "Gleanings among Mines and Miners,"
"Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish
Notes" (second series, 1863), "The Progress of Mining," with statistics of the
Mining Interest, annually for 21 years, &c., &c. In the Compendium, published
in 1845, Mr. WATSON was the first to recommend the system of a "division of
small risks in several mines, ensuring success in the aggregate," and Messrs.
WATSON BROTHERS have always a selected list on hand. Perhaps at no former
period in the annals of mining has there been more peculiar need of honest and
experienced advice in regard to mines and share dealing than there is at present;
and, from the long experience of Messrs. WATSON BROTHERS, they are
emboldened to offer, thus publicly, their best services to all connected with mines
or the market, as they have for so many years done privately, through the me-
dium of their own Circular.

Messrs. WATSON BROTHERS transact business in the purchase and sale of
mining shares, and other securities, payments of calls, receipt and transmission
of dividends, obtaining information for clients, and affording advice, to the best
of their knowledge and judgment, based on the experience of more than 30 years
active connection with the Mining Market.

Messrs. WATSON BROTHERS also inform their clients and the public that they
transact business in the public funds, railway, docks, insurance, and every
other description of shares dealt in on the Stock Exchange.

Messrs. WATSON BROTHERS also daily asked their opinion of particular
mines, as well as to recommend mines to investors, and they give
their advice and recommend mines to the best of their judgment and ability,
founded on the best practical advice they can obtain from the mining districts;
but they will not be held responsible, nor subject to blame, if results do not al-
ways equal the expectations they may have held out in a property so fluctuating
as mining.

Messrs. WATSON BROTHERS having agents and correspondents in all the
mining districts, and an extensive connection among the largest holders of mining
property, have the more confidence in tendering their advice on all matters re-
lating to the state and prospects of mines and mining companies, and are able
to supply shares in all the best mines at close market prices, free of all charge
or commission.

SATURDAY.—Market quiet, and prices about the same. Great
Laxey, 18½ to 19; Great Wheal Vor, 15½ to 16½; West Chiverton, 51 to 53; East
Lovel, 17½ to 18; East Seton, 2 to 2½; Frothing, 24s. to 25s.; Prince of Wales,
23s. to 25s.

MONDAY.—Market again quiet; East Seton advanced to 2½, buyers.
East Seton, 2½ to 3½; West Chiverton, 51½ to 52½; South Condor, 30s. to 32s. 6d.;
Providence, 36 to 37; Chiverton, 29½ to 30½; North Treskerry, 14s. to 16s.; Prince
of Wales, 22s. 6d. to 25s.; ex div., Don Pedro, 4½ to 4¾; Chontales, 1½ to 1¾;
Chiverton Moor, 3 to 3½; East Lovell, 17½ to 18.

TUESDAY.—Market continues quiet; East Lovell and East Seton chiefly dealt
in, at an advance. East Lovell, 17½ to 18½; East Seton, 2½ to 3½; Devon
Great Consols, 160 to 170; Great Laxey, 18½ to 19½; South Herodford, 24s. to
26s.; West Chiverton, 51½ to 52½; Prince of Wales, 22s. 6d. to 25s.; Providence,
36 to 38; West Prince of Wales, 24s. 6d. to 25s.; New Lovell, 25s. to 30s. Chiv-
erton Valley, 3 to 3½.

WEDNESDAY.—There is little change in the market to-day. East Seton, West
Chiverton, Prince of Wales, and Marke Valley in demand. East Seton, 2½ to
3½; West Chiverton, 52 to 53; Prince of Wales, 22s. to 24s.; Marke Valley, 2½
to 3½; East Lovell, 17½ to 18; Chontales, 23s. to 25s.; Agor, 35s. to 40s.; Mary
Ann, 16 to 17; Tincroft, 16 to 17; Providence, 36s. to 38s.; North Treskerry, 15
to 17s. 6d.; West Prince of Wales, 24s. 6d. to 25s.; Frank Mills, 23½ to 24; North
Croft, 25s. to 30s.

THURSDAY.—Market rather active for West Chiverton, Chiverton Valley, and
East Lovell. West Chiverton, 52 to 53; Chiverton Valley, 4½ to 4¾; East Lovell,
18 to 19½; Frothing, 24s. to 25s.; Great Laxey, 18½ to 19½; Marke Valley, 2½
to 3½; Frank Mills, 23½ to 24; East Caradon, 5 to 5½; Don Pedro, 4½ to 4¾.
FRIDAY.—Market very quiet, and prices merely nominal. West Chiverton,
52 to 53; Devon Great Consols, 160 to 170; Great Laxey, 18½ to 19; Great Vor,
15 to 15½; Frothing, 25s. to 27s. 6d.; Grouville, 45s. to 47s. 6d.; East Grenville,
2½ to 2¾; East Lovell, 18 to 18½.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Devon.

IN THE MATTER OF THE COMPANIES ACT, 1862, and of the
LEAWOOD MINING COMPANY.—By an Order made by His Honour the
Vice-Warden in the above Matter, dated the 18th day of August instant, on the
PETITION of Henry Hussey Vivian, William Graham Vivian, Arthur Pendarves
Vivian, Richard Glyn Vivian, Edward Budd, and Octavius Williams, Smelters
and Merchants (trading and carrying on business under the style or firm of
"Vivian and Sons," at Swansea, in the county of Glamorgan, and other places,
and amongst them at Plymouth, within the Stannaries of Devon), creditors of
the above named company, it was ORDERED that the said LEAWOOD MINING
COMPANY should be WOUND-UP by this Court under the provisions of the
Companies Act, 1862.
CARLYON AND PAULL, Truro
(Agents for W. P. Paull, Plymouth, Solicitor for the Petitioners).
Dated this 20th day of August, 1869.

In the Matter of the Companies Act, 1862,
AND IN THE
MATTER OF THE RHOS HALL IRON COMPANY (LIMITED).

TO BE SOLD, pursuant to the Order of the High Court of
Chancery, BY AUCTION, with the approbation of the Master of the Rolls,
at the Mart, in the City of London, on Tuesday, the 21st day of September, at
One o'clock, by Mr. GEORGE P. CLARK, the person appointed by the said
Judge, all that valuable LEASEHOLD MINERAL AND SURFACE PROPERTY,
known as the—

RHOS HALL, OR LLANERCHUGOG AND LLWYRMION
ESTATES.

In the parish of WREXHAM, and RUABON, in the county of DENBIGH, con-
taining TWO HUNDRED AND SIXTY ACRES OF MINERALS, COAL, IRON-
STONE, extensive deposits of FIRE CLAY and FREESTONE, and THIRTY-
FIVE ACRES OF SURFACE (be the same more or less), with the FIXED
PLANT AND MACHINERY thereon, and with the option to the purchaser of
taking the movable plant, machinery, and chattels by valuation.
The property consists of the leasehold iron and brickmaking works, farm-
house, buildings, and about thirty-six acres of arable and pasture land and
mineral grant, over the well-known and extensive property, called the Rhos
Hall and Llwynenion Estates, situate in the parish of Wrexham, and Ruabon,
in the county of Denbigh. The grant occupies about 266 acres, held for terms,
of which 85 years are unexpired at Ladyday, 1869, subject to the nominal rent
of £75 per annum, with the privilege of using the surface land adjoining that
comprised in the grant, upon payment of a rental of £2 per acre. The farm
buildings and 36 acres of land are let to Mr. Davis, at a rental of, per annum,
£80.

A branch of the Shropshire Union Railway, called the Llwynenion Branch,
passes through the estate within a few yards of the blast furnaces, thus afford-
ing direct communication to all the best markets in the country.

The vendors reserve to themselves the right of selling subsequently the move-
able articles and effects by auction on the estate.

Particulars and conditions of sale may be had gratis of Messrs. SHARP and
ULLITHORNE, 1, Field-court, Gray's Inn, London; Messrs. DAVIES and STREY-
TON, 3, Gray's Inn-square, London; Messrs. RUTHER, NEVE, and RUTHER, of
Wolverhampton, Solicitors; Mr. GEORGE SCOTT, 2, Bond-court, Walbrook, London,
the Official Liquidator; Messrs. INGLEBY, WRAGGE, and EVANS, of Bir-
mingham, Solicitors; Mr. RHYMER, of Wrexham, Denbighshire, Solicitor; and
of the Auctioneer, 48, Chancery-lane.

ROBERT MARSHALL, Chief Clerk.

SHARP and ULLITHORNE, Gray's Inn.

Dated this 9th day of August, 1869.

Companies Acts, 1862 and 1867.

IN THE MATTER OF THE BRYN-YR-OWEN COLLIERY COMPANY
(LIMITED). IN LIQUIDATION.

**IMPORTANT SALE OF STEAM AND WINDING ENGINES, PLANT, MA-
CHINERY, COKE OVENS, OFFICE FIXTURES, AND THE UNEXPIRED
TERM OF LEASES.**

MR. T. W. HILL has received instructions from Henry Thomas,
Esq., Liquidator, to submit to PUBLIC AUCTION, on lands known as
Pentrebachan, belonging to H. W. Meredith, Esq., on Tuesday, August 31, 1869,
at Twelve o'clock A.M., subject to conditions, in several lots, the VALUABLE
STEAM AND WINDING ENGINES, PLANT, MACHINERY, &c.

Also, at the Wynnstay Arms Hotel, Wrexham, on the same day, at Five
o'clock P.M., subject to conditions then to be declared, in One Lot, the unex-
pired term of the LEASES of the

BRYN-YR-OWEN COLLIERY COMPANY (LIMITED).

Together with the whole of the excellent PLANT, MACHINERY, ENGINES,
COKE OVENS, OFFICE FIXTURES, &c., on lands known as Bryn-yr-Owen,
belonging to Simon Yorke, Esq., and now in the occupation of the above-named
company.

Pentrebachan and Bryn-yr-Owen are situate close to Ruabon, on the Great
Western line of railway.

Descriptive particulars, with all further information, may be obtained by en-
closing stamps to Mr. T. W. HILL, Auctioneer, Oswestry.

WHEAL FALMOUTH AND SPERRIES MINES, near TRURO.

MR. MAYNE is instructed to SELL BY AUCTION, in One
Lot, on Tuesday, the 31st of August instant, at Two o'clock in the
afternoon, at the Account-house, on the Mines, the WHOLE of the
VALUABLE MACHINERY AND MATERIALS

Of the above mines, together with the MINE SETTS.

These mines are situate about four miles from Truro, and three miles from
the Chacewater Railway Stations.

For further particulars, apply to Capt. KITTO, on the Mines; to Mr. CHARLES
HAWKE, the Chairman of the Committee, Truro; or of the Auctioneer, Truro.
Dated Auction Office, Lemon-street, Truro, August 18, 1869.

RARE OPPORTUNITY FOR INVESTMENT IN CORNISH MINING.

MR. JOHN PERMEWAN WILL SELL, BY AUCTION, on
Friday, the 3d day of September next, at Twelve o'clock at noon, at
CARN GALVER MINE,

In the parish of ZENRON, in the following or such other lots as may then be
determined on, the very valuable

MACHINERY AND MINE MATERIALS thereon:

LOT 1.—30 in. double-acting STEAM ENGINE, with two bobs for pumping
and drawing; 2 tons BOILER; pumps and other pitwork; whim chain; pul-
leys; skip road, &c., &c.

LOT 2.—12-head WATER STAMPS, with 36 feet WATER WHEEL, erected
with the best materials, and at a very considerable expense.
In SUNDRY LOTS.—New and old iron; steel; miners' tools; contents of black-
smith's shop; the account-house furniture; Norway bark; scales and weights;
miner's dial; the necessary materials used in tin cleaning at the stamps, in-
cluding a Borlase's patent buddle.

The lords have offered to grant a new lease for 21 years to any responsible
person or company. The mine has returned net £26,000 worth of tin, and was
stopped in consequence of the late low price, coupled with the falling health of
the present lessee and principal shareholder. As a speculation it forms one of
the most promising concerns in the market.

The whole may be viewed on application to Matthew Eddy, timberman, on
the mine.

Refreshments at Eleven A.M.
For further particulars, apply to Mr. JOHN PERMEWAN, Auctioneer,
Penzance, August 21, 1869.

VALUABLE FREEHOLD PROPERTY,

COAL AND IRONSTONE MINES, PLANT AND MACHINERY,
AT IPSTONES, STAFFORDSHIRE.

MR. HARROP WILL SELL, BY AUCTION, at the Crewe Arms
Hotel, Crewe, on Thursday, the 23d day of September, 1869, at Three
for Four o'clock in the afternoon punctually, in the following or such other lots
and in such order as may be determined upon by the agents of the vendors at
the time of sale, and subject to such conditions as will be then produced.

LOT 1.

A compact FREEHOLD ESTATE, situated at IPSTONES, in the county of
STAFFORD, called "THE NEW HOUSE FARM," in the occupation of Mr.
JAMES WORTHINGTON, and containing in statute measure 27A. 2B. 21P., or
thereabouts.

This estate is in a ring fence, the land is of good quality, and the farmhouse
and outbuildings are well and substantially built; it abuts on the turnpike-
road leading from Cheddle to Ipstones, and is about a mile from the canal and
railway stations at Froghall, in North Staffordshire. It contains SEAMS of
COAL and IRONSTONE, the former of which has been proved by sinking to be
at a depth of about 90 yards, and to be from 2 to 3 ft. thick, and the latter by
boring to be at a depth of about 175 yards, and to be from 13 to 25 in. thick,
and by analysis by Prof. TILSON and Mr. SAMUELSON, is shown to be of the
same quality as the best of the Froghall Red Hydrate, so well known and ap-
preciated in the market.

These mines were recently in lease to the New House Mining Company (Li-
mited), who are stated to have expended a large sum of money in sinking shafts
of the depths respectively of 95 yards and 140 yards, driving levels and cruts,
and other operations for opening the mine. The company is being wound-up, owing
to inadequacy of capital, and the mines have become forfeited to the vendors,
and are, with the shafts, comprised in this lot.

LOT 2.

The PLANT and MACHINERY at the works on the above estate, consisting
of ONE 45-horse power ENGINE, with TWO BOILERS, each 36 ft. long by 6 ft.
diameter; ONE PLUNGER LIFT, 95 yds. 14 in. diameter, 5 ft. 2 in. stroke;
ONE PLUNGER LIFT, 95 yds. 18 in. diameter, 5 ft. 7½ in. stroke; ONE 18 in.
BUCKET LIFT, 39 yds. 5 ft. 2 in. stroke; one ditto, not quite complete; with
T-bobs, pumping crank and wheels, and all connecting machinery thereto, with
wrought-iron drum shafts and wheels, and 11-ft. winding drums; large capstan
and rope crabs, pit frames, &c.

N.B.—The purchaser of Lot 1 will have the option of taking Lot 2 at a price
to be announced at the sale, such option to be declared on the fall of the ham-
mer for Lot 1.

Detailed particulars, with plans, are being prepared, and after the 4th day of
September, 1869, may be obtained at the place of sale, and, with any further in-
formation, on application to the Auctioneer, Frodsham; Mr. WILLIAM ROBY,
Mining Surveyor, Green Bank, Lawton; or—

Mr. JOHN ASHTON, Solicitor, Frodsham.

WALKHAM AND POLDICE MINE, BUCKLAND MONACHORUM.
TO MINE AGENTS, IRON FOUNDERS, AND OTHERS.

MESSRS. MONK AND SON have been instructed to SELL,
BY PUBLIC AUCTION, in Lots, the WHOLE of the
MACHINERY AND MATERIALS ON THE SAID MINE,

on Wednesday, 8th of September, 1869, comprising—
WATER WHEEL, 28 ft. high, by 6 ft. breast, with wrought iron axle, cast
sockets and segments (almost new), and DRAWING MACHINE attached.
CORNISH CRUSHER, with 20 in. rolls.
WATER WHEEL, 18 ft. high, by 4 ft. breast, with iron sockets, segments,
and 6 heads of stamps.

Ten 9 in. pumps, two 8 in. ditto, 12 7 in. pumps, with workings, door pieces,
and windbores; 33 4 in. iron air pipes, about 9 tons of tram iron, in good con-
dition, shaft bob, pendulum bob, 3½ fms. of 2½ in. drawing rods, about 34 fms.
7 in. wood main rods, poppet heads, with 4 ft. pulleys, capstan (complete), 80 fms.
8½ in. new capstan rope, several pulleys and stands, screw stocks, taps and
plates, bucket rods, prongs and clacks, iron and wood tram wagons, crab winch,
bell and stand, quantity of chain, stipples and glands, set-off, bevil, shaft and
winze kibbles, several wood sheds, flange and rod bolts, smiths' and miners'
tools, vice, bellows, anvil, grindstone, jiggling frames, bud-les, butches, strakes
and ties, wrought and cast scrap iron, quantity of flooring and sleepers, board-
ing and other timber, firing, &c.

The auctioneers beg to call attention to the above materials, the whole being
in very good condition, some having never been used. As the lots are numerous,
the sale will commence punctually at One o'clock, and sold without reserve.

N.B.—The mine is situate about a mile and a quarter from the Horrabridge
Railway Station, thus affording the materials easy transit.

The materials may be viewed, and further information obtained on applica-
tion to Captain LEAN, Horrabridge; the auctioneers, Abbey, Tavistock; or to
Messrs. BRIDGMAN and SON, solicitors, Tavistock.

Abbey, Tavistock, 25th August, 1869.

TO PROMOTERS OF PUBLIC COMPANIES, AND OTHERS.

FOR SALE, a VALUABLE SILVER-LEAD MINE, situated
two miles south-east of TALLYBONT, CARDIGANSHIRE, and four miles
from the Llanfangel Station on the Cambrian Railway. The Mine is at pre-
sent worked by a private company, whose means are not equal for the proper
development of the property.

Discovered ore ground and reserves valued at £2500.
For further particulars, apply to Mr. JAMES MATHIAS, Penrhyncoch, Aberyst-
with, Cardiganshire.

VALUABLE SLATE PROPERTY IN DEVON.

TO BE SOLD, OR LET, for a term of years, a SLATE and
SLAB QUARRY, in the parish of MILTON ABBOTT, in direct line with
the well-known Coryton Quarry, and near to the Coryton Railway Station, on
the South Devon, Tavistock, and Launceston line of railway.

"The bed of slate rock is the best I have ever seen discovered in the neigh-
bourhood. At a depth of only 10 ft. from the surface there is good marketable
slate, and is likely to prove a very profitable investment, the colour and quality
being equal to the slate raised from the Old Delabole Quarries, in Cornwall. I
have been connected with slate quarries more than forty years, and over twenty-
five years have been a manager. NICHOLAS KENT, Launceston, Cornwall."

For particulars, apply to Mr. WILLIAM BICKLE (proprietor), Green Cross,
Milton Abbott.

VALUABLE SLAB QUARRY TO BE LET, on the
ABERLEFENY VEIN, situated about three and a half miles from a
railway station, in a very advantageous place to work. The set contains about
SEVEN or EIGHT HUNDRED ACRES, with water power to work a large num-
ber of machines. The quarry is sufficiently open to prove the quality of the
rock and the regularity of the foot joints, which are good. Slabs of large di-
mensions are made, which can be seen.
Apply to Mr. EDWARD DAVIES, Mawddwy Cottages, Dinas Mawddwy, Mer-
ionethshire.

TO BE LET, ON LEASE, with immediate possession, a
COLLIERY on the ADLINGTON ESTATE, in the county of CHESTER,
adjoining to Lord Vernon's Poynton Collieries, consisting of between FOUR
and FIVE HUNDRED ACRES OF COAL, with the whole of the PUMPING and
WINDING ENGINES, SHOPS, MACHINES, &c., complete for working the
same, the owner of the estate having recently sunk the pits to the coal, which
is now ready for getting.
There is a siding from the drawing pit to the recently-opened railway from
Macclesfield to Marple, also a communication with the canal, having a wharf
at the same, which is within a short distance: both railway and canal passing
through the estate.
Application for terms, and to arrange for same, to be made to Mr. B. MART,
Mining Engineer, Stoke-upon-Trent.

RHENISH PRUSSIA.

SEVERAL VALUABLE MINES FOR SALE,—LEAD
COPPER, BLENDE, and IRON. The Mining Laws of Prussia give with
the concession to work, an absolute right of property in the mine for ever, sub-
ject only to a royalty of 2 per cent.
Apply to Mr. YOUNGHUSBAND, 6½, Wilhelm Strasse, Bonn-on-the-Rhine.

FOR SALE, for £2000, ONE-FOURTH in a FIRST-CLASS
LEAD and COPPER SETT. Muncie can be seen in masses cropping to
the surface; 5 tons have been raised already from a hole 4 feet deep; large
specks of lead are to be seen in the spar and muncie; three lodes passing through
the sett, two of which will intersect in 10 fms. deep. The muncie can be sold
in any quantities for 30s. per ton. Two years' grant from May last, with the
usual condition for a lease of 25 years at £220 royalty; position unrivalled. An
adit can be driven to intersect the lodes at 50 fms. deep.
Application to R. J. BOX, Post Office, Bristol.
[Specimens can be seen at the MINING JOURNAL Office, No. 26, Fleet-street,
London, E.C.]

FOR SALE,—THE UNDERMENTIONED ENGINES AND
WATER WHEEL:—

ONE 50 in. cylinder PUMPING ENGINE, with ONE BOILER.

ONE 12 in. cylinder rotary STEAM ENGINE, with ONE 6 ton BOILER.

WATER WHEEL, 40 ft. diameter, and 8 ft. breast.

ONE WATER WHEEL, 40 ft. diameter, and 8 ft. breast.

Also, several CORNISH CRUSHERS, of various sizes.

For further information respecting the above machinery, apply to W.
MATHEWS, Engineer, Tavistock.

Tavistock, Aug. 17, 1869.

FOR SALE, cheap, a 16-horse power PORTABLE STEAM
ENGINE, new, and with all recent improvements, guaranteed.
FIRST-CLASS PORTABLES, 5 to 25-horse power, on advantageous terms.
Prize Medals awarded—Hamburg,

BICKFORD'S PATENT SAFETY FUSE

Obtained the PRIZE MEDALS at the "ROYAL EXHIBITION" of 1853; at the "INTERNATIONAL EXHIBITION" of 1862, in London; at the "IMPERIAL EXHIBITION" held in Paris, in 1855; at the "INTERNATIONAL EXHIBITION," in Dublin, 1865; and at the "UNIVERSAL EXHIBITION," in Paris, 1867.



BICKFORD, SMITH, AND CO., of TUCKINGMILL, CORNWALL, MANUFACTURERS OF PATENT SAFETY FUSE, having been informed that the name of their firm has been attached to fuse not of their manufacture, beg to call the attention of the trade and public to the following announcement:—
EVERY COIL OF FUSE MANUFACTURED BY THEM HAS TWO SEPARATE THREADS PASSING THROUGH THE COLUMN OF GUNPOWDER, and BICKFORD, SMITH, AND CO. CLAIM SUCH TWO SEPARATE THREADS AS THEIR TRADE MARK.

ESTABLISHED MORE THAN HALF A CENTURY.

THE TAVISTOCK FOUNDRY, IRONWORKS AND HAMMER MILLS,

which have been carried on for more than half a century by
MESSRS. GILL AND CO.,

and obtained a
**HIGH REPUTATION FOR
SHOVELS AND OTHER TOOLS**

as well as for
ENGINEERING AND FOUNDRY WORK

have been purchased by
MESSRS. NICHOLLS, MATHEWS, AND CO.,
BEDFORD IRONWORKS, TAVISTOCK.

For thirty years Messrs. NICHOLLS, MATHEWS, and Co., have been the proprietors of the latter works, but have now removed to the

TAVISTOCK FOUNDRY,

where, having the advantage of a never-failing stream of water of upwards of 200-horse power, they will have increased facilities for speedily and satisfactorily executing all orders entrusted to their care.

Manufacturers of STEAM ENGINES and BOILERS, on the newest principle; pump work, brass and iron; hammered iron shafts, of all sizes; millers' steel and iron tools.

N. M. AND CO. have had a LARGE EXPERIENCE in PREPARING MACHINERY for FOREIGN MINES, as well as selecting competent mechanics to erect the same.

N. M. AND CO. have always a LARGE STOCK of SECOND HAND MATERIALS.

WILLIAM HANN AND SON beg to offer to SUPPLY COLLIERY OWNERS, and the public generally, with their improved STEPHENSON AND CLANNY PATENT SAFETY LAMPS,

which have been proved INEXPLOSIVE in the testing apparatus in the highest obtainable current of gas of 48 ft. per second. These lamps are simple in their construction, burn with a steady and nearly uniform flame in moderate currents, give a good light, and are in every respect practicable lamps. Price, No. 1, 8s. 6d. each; if in quantities of a dozen and upwards, 8s. each; ditto, ditto of 100, at 7s. 6d. each; ditto, ditto of 200, at 7s. each, delivered free. No. 2 is, each above the No. 1. Orders received by—

WILLIAM HANN AND SON,
HETTON COLLIERY, FENCE HOUSES.

IMPROVED PATENT COAL-WASHING MACHINE, AND MINERAL ORE SEPARATOR.

EDWARDS'S PATENT.

THE MOST ECONOMICAL AND EFFECTIVE MACHINE MADE.

See extracts from testimonials below:—

BLAINA IRON WORKS.—"Effectual and economical. The most simple and serviceable apparatus we know."

BRYMBO IRON WORKS.—"Its performance equals our expectations, taking but little power to work it, and not requiring much water."

J. BROWN, Esq. (Messrs. Brown and Jeffercock).—"To judge from the model, the most efficient machine I have seen."

Capt. J. BALL (late of the Minera Mines, Wrexham).—"Its general adoption, in my opinion, cannot fail."

Capt. ISAAC FRANCIS.—"A great improvement in the department of dressing ores."

Mr. B. J. EDWARDS.—"Perfect in its action, and economical in working."

Vicomte de SEQUEVILLE (National Mining Society of Lombardy).—"It works well and quickly, and without any loss of lead or silver."

Messrs. BELL BROTHERS (Middlesborough).—"April 26, 1869: 'The washing machine is now at work, and is giving satisfaction.'"

LILLESALL COAL AND IRON COMPANY.—"June, 1869: 'We are happy to say your washing machines are working satisfactorily; they have done good average work for some time past.'"

THORNCLEIFFE, FOREST OF DEAN, &c., &c.

VERY GREAT SAVING EFFECTED BY THIS MACHINE in the COST OF DRESSING LEAD, COPPER, and other ORES.

Full particulars on application to—

MR. E. EDWARDS, C.E.,
22, BUCKINGHAM STREET, ADELPHI, LONDON.

PATENT SELF-REGISTRATION COLLIERY WINDING INDICATOR.

THIS INDICATOR, in addition to its ordinary use, INDICATES and REGISTERS the NUMBER OF WINDINGS, thus enabling the Manager to check at a glance the returns of the Bankman or Clerk.

PEPPER MILL BRASS FOUNDRY COMPANY,
DARLINGTON STREET, WIGAN,
MAKERS.

GENERAL MINING COMPANY FOR IRELAND (LIMITED).

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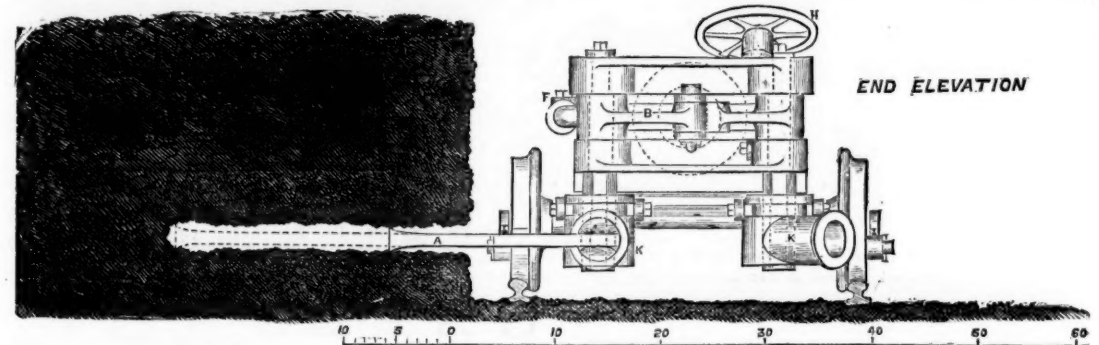
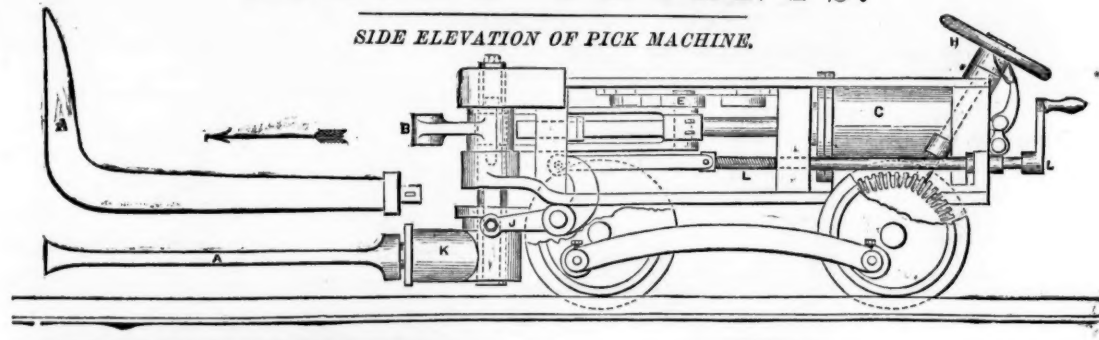
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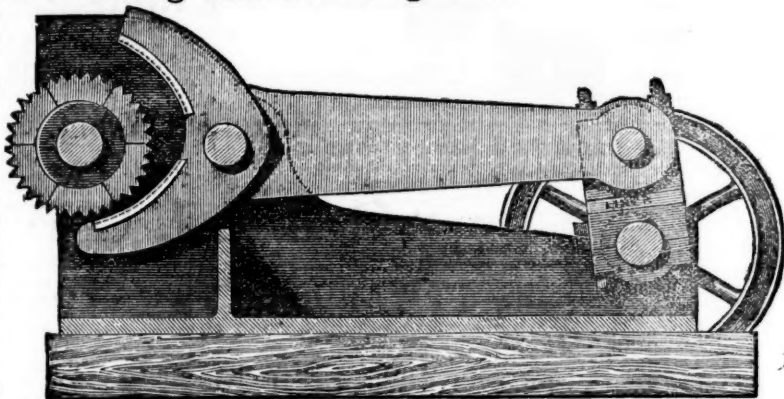
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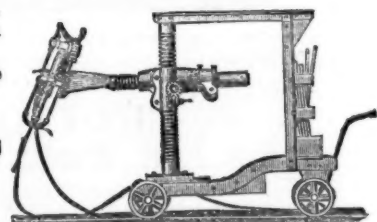
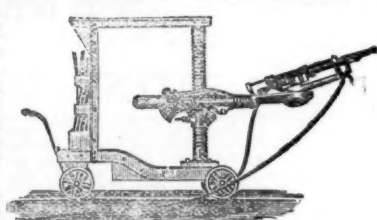
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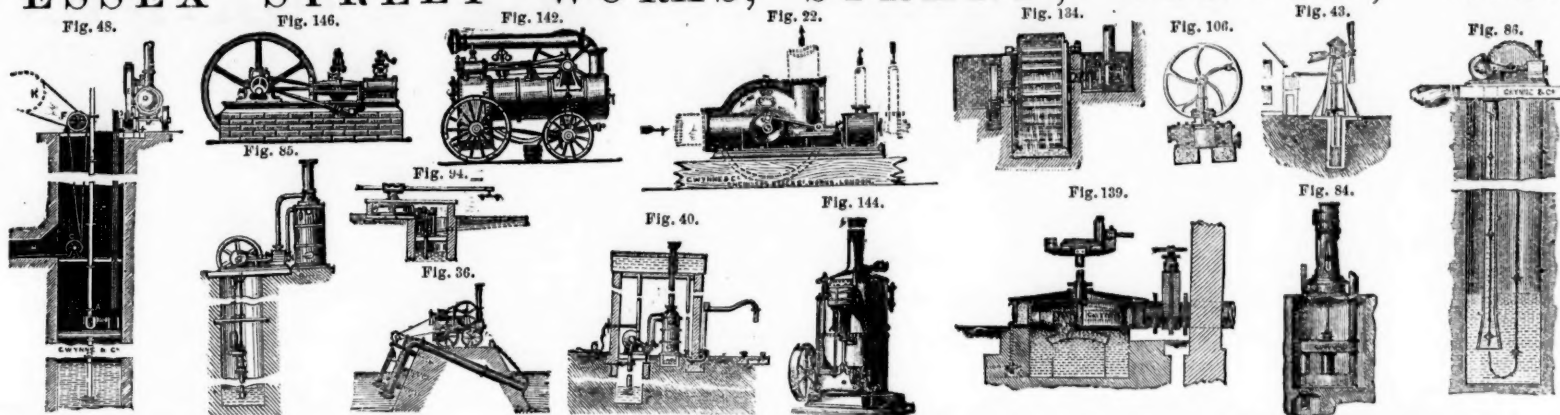


Fig. 144.—Vertical Engine, all sizes, from 2 to 20-horse power.
Fig. 146.—Horizontal Engine, from 4 to 100-horse power.
Fig. 142.—Portable Engine, from 2½ to 30-horse power.
Fig. 40.—Gwynne and Co.'s Combined Stationary Pumping Engine.
Fig. 139.—Turbine Water-wheel, from 1 to 300-horse power.

Fig. 22.—Combined Pumping Engine, all sizes, obtained Prize Medal, Paris Exhibition.
Fig. 85.—Deep Well Pumping Engine, all sizes.
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Fig. 36.—Gwynne and Co.'s Patent Syphon Drainage Machinery.
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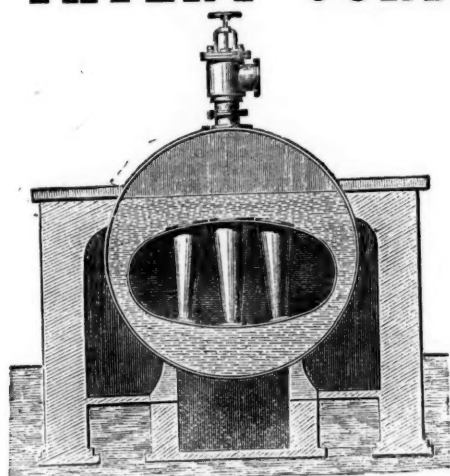
Fig. 86.—Chain Pump Pumping Engine.
Fig. 48.—Deep Mine Centrifugal Pumping Machinery.
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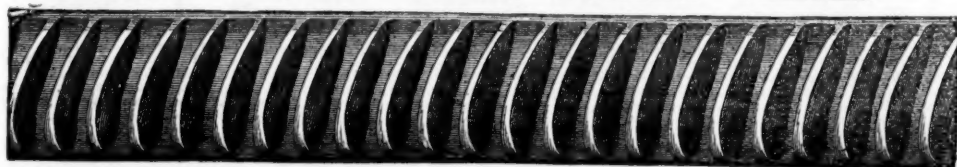
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